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– see page 4

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DON'T RISC IT!

Acorn last week fired a warning shot across software publishers' bows - say caught showing off Archimedes programs developed for the new RISC upgrade will risk excommunication.

This was particularly applied to the BBC Show held at the weekend. Acorn were keeping an eye out for exhibitors previewing new products. In all 96 publishers have seen and been warned on the new upgrade but have been warned not to show off any work that far undertaken.

That will apply until the new RISC becomes available in the spring. Then, Archimedes users will be able to buy the chips for £25. New batches of the machine will be fitted with the upgrade.

"They have been able to see how to write applications for it but they have all signed non-disclosure agreements. We didn't force them to sign," said an Acorn spokesman. "Those who choose not to follow the rules may find that they no longer have access to software support."



Archimedes RISC upgrade under wraps

Coin-op Freescape

Freescape, the innovative programming technique developed by Incentive, could turn up in the arcades. Incentive is currently talking to hardware manufacturers about the possibility of building a coin-op machine dedicated to running Freescape's solid 3D routines. However a finished machine would be at least two years away.

In an interview with Express, Incentive boss Ian Andrew suggested that Freescape in the arcades could run 100 times faster than in its current 8-bit incarnations and would be "an incredible experience".

• Driller: Freescape on 8-bit.

• Full interview p. 23.

EXPRESS EXCLUSIVE

New machine will have 3-inch drive

KONIX CONSOLE LINKED TO EX-SINCLAIR TEAM

The secret new sub £150 console from joystick king Konix has been worked on by the ex-Sinclair team who are currently developing the revolutionary Flare mine. New Computer Express can also reveal the console will include a 3 inch disk drive when it is launched next summer.

Obviously Konix's machine does not exist. This is despite a prototype being shown to a handful of leading British software houses at the PC Show on a strictly confidential basis.

The breaches of this confidence - which have resulted in a string of published stories about the console - now look like resulting in Konix turning to American and Japanese firms for software support.

Industry sources have disclosed that the Konix console will utilise technology developed by ex-Sinclair team Flare Technology for its own machine. Konix is known to be impressed with Flare's work but has ruled out taking its machine in its entirety on grounds of cost.

The Flare has been designed as the ultimate games machine, so much so that it couldn't be sold for less than £200; one well placed industry figure said.

Konix, though had realised that Flare was working on broadly similar technical lines. These were discussions between the two firms and some additional design work has been done by Flare for Konix on a 'six of one and half a dozen of the other' basis.

No official contracts have been signed and at this stage it is not clear whether Flare will be producing its own separate machine.



• Holloway: Irritated by leaks and reports

Flare director John Matheson refused point blank to comment on 'our agreements', a phrase which may or may not refer to Konix - Amstrad and Atari have both been reported as showing interest in Flare's work.

Whatever, Konix is keen for the console design to be seen as its own.

And further, it strongly believes in the virtue of a European machine.

"We want to prove that the Europeans can do it and do it better than the Japanese. That's one of the reasons we made our joystick," explained a company insider.

The news that the console will include a double-sided 3 inch drive, similar to those used on Amstrad's PCW computers, will surprise some

observers. However it could encourage wider software support by avoiding the extra costs of duplicating onto cartridge.

Konix boss Wyn Holloway is clearly irritated by premature talk of his new console and by inaccurate press coverage. "We make joysticks and we've sold over three million to date. If we were going to launch a console we'd keep as quiet about it as possible until the launch," Holloway told Express.

His aim has been to keep advance details away from rivals Sega and Nintendo. On the positive side the console's design, technology and price have evidently impressed many. Several thousand units are claimed to have been pre-sold ahead of launch, making it look already set on the path to success.

Woke-based Konix has been one of the fastest growing companies in the computer world over the past three years, thanks largely to the remarkable worldwide success of its Speed-Junk joysticks.

Konix: the leaked spec

PRICE: Just below £150

LAUNCH: Due to be announced in February or March. It should be on sale in the summer.

PITCH: It's been touted as faster than both the Amiga and ST with better graphics and sound than either. It will run at about 15 Mips (million instructions per second).

DRIVE: A three inch double-sided disk drive included in the price. It will also support cartridges.

DESIGN: "Can you imagine a console inside a joystick?" offered one observer. Well, no not really. But the Konix console has a strong innovative design closer to arcade machines than other consoles.

NAME: Internally it is known as Signamax, though this is not likely to be its commercial name.

Would you credit it?

A gang of travellers was jailed for a total of eight years last week after using a souped up PC to clone thousands of cash point cards.

The conviction had used the PC, plus other equipment, to copy data from the magnetic strips of genuine cards onto £100 blank cards they had stolen.

The two men and their wives then embarked on a outburst after getting £25,000 in London, Birmingham and Walsall.

They were caught because the machines retained many cards. A Midland Bank computer operator noticed the pattern of cards being stolen and alerted the police.

Judge Tim Lawrence described it as a "raining plan" involving "buying equipment with which it is possible to clone or copy these cards."

When the women were caught they had around £1,000 left - their partners had none.

Cliff hits the fire button

At last, conclusive proof that there's nothing wrong with playing violent computer games - Cliff Richard does it so it must be OK. It emerged last week that the intemperate pop crooner with the squeaky clean image is a sucker for golden oldies titles such as Space Invaders and Pac Man.

And, according to the Manchester Evening News, he especially requested that the violent arcade game Gamera War be played in his dressing room for an after concert shoot-out at the Manchester Apollo.



• Richard: Shoots on up

PC prices fall as chip prospects brighten

Another hardware manufacturer has cut the price of its PCs due to the healthier supply of D-Ram memory chips.

Epson has lagged £58 off its entry level PCs 70 which now costs £245. All other PCs in its range have enjoyed similar price cuts with high end machines

being cut by up to £350.

Apart from the increasing availability of chips Epson is putting its price cuts down to increased demand among home and small business users as opposed to corporate customers.

The firm hopes to pitch home users with more value following the £50 price cut. On chips, PC business manager Ian Phipps commented: "The D-Ram shortage hit hardest at the supply of our entry level PCs... These problems now seem to be improving."

This follows Epson announcement last week of price cuts across its range of PC clones. And Atari has brought forward the launch of its new models after obtaining substantial batches of the



• Epson PCs: All down

memory chips. For months now the hardware manufacturers have been sweating out a drought of D-Ram. Most firms are now managing to secure more reasonable supplies.

Talking Japanese

On the subject of Epson, the Japanese firm is expected to unveil the first full colour liquid display portable PC in Tokyo next year. It features the new Hitachi 20000 RISC system which is claimed to have twice the output of standard systems.

However, it won't be in the UK for 'a long long time and perhaps never' according to a senior UK representative Epson spokesman. But a more NTX version should be here next year.

ROW HITS ATARI SHOW

Atari show organiser Database has found itself embroiled in a strange dispute with software houses.

According to Database, US Gold, along with Ocean, had been invited to sit on a panel at the show next week judging new software and offering tips and advice to young programmers. However, neither company had actually paid for a slot.

Another exhibitor, Microbot, complained Gold and Ocean would be getting good publicity from a show without paying for it. This, the firm

argued is unfair, since it has paid good money to exhibit.

Bob John Symes told Database: "You have introduced unfair competitive practice by giving free space and promotion to our larger competitors." As a result Database says it "politely asked" US Gold and Ocean to withdraw.

But the company then put out an announcement saying that in an amendment, saying that in a David versus Goliath confrontation, David had won. This statement has led to some dismay at Gold head-

quarters where the company denied it was having ignored the original invitation. A spokesman told Express the whole story was 'absolute fiction' and that Gold was not planning to attend anyway.

Database, already in something of an embarrassing position, insists Gold was to attend. The firm claims Gold is suffering from a lack of internal communication. Database's Mike Cowley said: "We made the arrangements at the PC Show and we wrote a letter confirming it."

BORLAND SEES RED

Business software giant Borland was last week attempting to avert the blow of huge financial losses with the launch of new products.

Though prices have yet to be ascertained its new batch of products include Turbo Assembler and Debugger, Pascal Professional for integrated development and the Runtime Library Server.

Borland appears to have hit the classic 'fast growing company in new technology' wall with worldwide losses amounting to £3.3 million for the first six months of this year. That compares to profits approaching £3 million for the comparable period last year.

Dedicated Borland boss and industry

character Philippe Kahn admitted that there had been "mistakes". He added though that a feeling of "optimism for the future" is prevailing at the firm.

Despite that Borland France has undergone a drastic shake up. Following senior staff departures in France Borland US now believes HQ for Europe. Kahn is quoted as saying that Borland France's performance was responsible for a large proportion of the losses.

Borland joins a long list of firms which have come down to earth with a bump after extraordinary success in the computer market. They include Sinclair, Acorn, Commodore and Atari as well as many software publishers.



• Kahn, Big, Big Issues

That's Dandy! Desperate Dan gets his own computer game

Licencee giant Grandstream has scooped up another big name for next year - this time it's the Dandy comic.

Celebrating the esteemed journal's 50th anniversary Grandstream will be launching The Computer Comic in the New Year featuring characters such as Desperate Dan and Brainiac.

Most areas of popular entertainment have appeared in computer games to varying degrees of success. This time is something of a first for a kids comic (superheroes notwithstanding). Defunct publisher Pinter has had a go with 2000AD characters but fell short. It is expected that other comics will be emerging from Grandstream next year, depending on how the Dandy takes off. One suggestion is Dennis the Menace.

NEW COMPUTER

OUR OPINION

I'm Big, Matey

It must be nice to be IBM.

For years you happily ignore the micro-computer revolution that's happening all around you.

When the phenomenon becomes big enough to be interesting you come out with your own machine (not worrying too much whether it's state of the art or merely competent). And because you're IBM, all chicken-hearted corporate buyers decide they might as well play safe and opt for your PC.

Then, because there are an awful lot of chicken-hearted corporate buyers, most software and add-on developers decide they too had better jump on the IBM bandwagon.

The resulting explosion in IBM support forces other manufacturers to produce machines which can run the same programs and peripherals, causing a snowball effect which establishes IBM machines as the industry standard.

Finally, the ultimate delicious irony. You make the other manufacturers pay through the nose for supporting this standard. One per cent of all sales will do nicely.

Do you get away with it? Latest reports - see Amstrad story on page 4 - suggest you do. Computer manufacturers around the world must be gnashing their teeth.

Budget rethink

Here's a turn up for the books: budget games maestros Codemasters has upped its bottom level prices to £3 and established new labels around the £10 mark (see page 6 story).

For two years now all the evidence has pointed to a relentless move toward lower-priced games on the 8-bit machines.

Codemasters itself has screamed the message long and loud that full-price software is dead.

The arguments are like those of Ocean that only full-price games can fund long-term development and decent marketing were scorned.

Until now.

Could it be that the demise of full-price software has been over-slightly exaggerated?

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Shoot from the Lip... the week's most quotable sayings

"The one has the 20 games on the CD. The other has any Commodore game as long as they're lower than 64."

A Lasky salesperson, proving that these high street folk really do know what they're talking about.

"People want Amiga and STs now. We only stock Microsofts." Disillusioned Beos salesperson (and just that was Amiga).

"They're being done backing Apple for some two years now, but it's very difficult

when you go over the top with experts. With thousands of sheets of new notes it's like trying to secure a departure zone in January with fourteen entries."

Comms expert Steve Gold on the future of backing.

"Being under an administrator has been really useful. It's made everyone pull together. Financially troubled but business software publisher's marketing manager Colin Buttable, evidently determined to look on the bright side regardless.

Erasable CDs: next big thing?

Magnetic optic disks will be the future of mass information storage according to giant electronics firm Canon.

It has spent the past seven years developing an erasable disk system which, it claims, supersedes CD-ROM and laser disks and leaves traditional floppy disks nowhere.

Apple co-founder Steve Jobs has taken on the system for his new MacT computer due to be unveiled within the next 18 months. Also, Canon is selling the technology to firms in seven different countries.

The disks reportedly resemble CDs although are superior in that they are erasable. They consist of two layers. The first handles information which is erasable and the second can store long term data.

The writing, reading and erasable functions are claimed to be far superior to CD-ROM technology which can only hold



Jobs: Picking up CD breakthrough data. While Steve Jobs (above) systems have thus far failed to inspire. Although Canon is gearing up for full production it seems unlikely that even the US market will use these products until 1992.

Filofax deluge

Filofax noting highfliers are facing a growing onslaught of organiser-related odd one and perpherals and, of course, their computer-based equivalents.

Business software developer Paperback is currently on the look out for add on databases to direct at PC evening yuppies. These will be compatible with the company's new organiser program and will cost just under £30 a shot.

Lists of restaurants in London, hotels in Lancs and Irish airlines operating from Peru or buses to Arnhem are all, roughly speaking, the sorts of things in mind. Presumably the idea is that users really can organise their lives from a PC.

The organiser program itself is a direct upgrade of that which is bundled with the Amstrad PPC. Sourced from Clamsa Software it should be around next year at 'anything from £39 to £199' depending on how many extra bits Paperback sticks on.

• Dial Paperback from your car-phone on 0245 285017

AMSTRAD'S ROYALTY SECRET

A London firm of analysts has claimed that Amstrad paid out huge sums of money for the right to use IBM technology.

City analyst Sheppards Research said last week that Alan Sugar may have paid the giant US corporation up to £5 million in royalties - that would be more than the money paid for Sinclair in 1986.

The £5m figure works out as back payments of one per cent of all Amstrad PC sales since the 1612 was launched two years ago. Amstrad has declined to confirm or deny that money was paid. Non-disclosure, it says, is part of its agreement with IBM.

But Sheppards' electronics expert Chris Whitehead is convinced that substantial funds were handed over: 'When I spoke to Amstrad about it I felt that they definitely didn't want to talk about it and that they had paid something.'

He added: 'When Amstrad do something they usually talk about it but they were very tight lipped.'

Amstrad's patents deal with IBM was announced in the summer and at the time Amstrad indicated that no money had changed hands. Instead it was traded as a reciprocal deal whereby both companies would use each other's technology. However, it was never clear what IBM would want out of Amstrad.

IBM has long been looking to

regain royalties from clone manufacturers for all sales of MS-DOS machines. Last week Minac was reported to have paid one per cent of all its PC sales.

An Amstrad spokesman told Express: 'We have never confirmed any figures.'

Industry sources suggest a public admission of royalty payments to IBM would conflict with Amstrad's tough image of doing things its own way.

Meanwhile, Amstrad has responded philosophically to an eight point drop in its share price. This followed



• Sugar: £5 million pay out!

large city analyst County MacWest revising profit predictions for Amstrad downwards.

'In a volatile market,' shrugged the Amstrad spokesman.

Despite their royalty claims Sheppards recommends Amstrad shares as 'quality stock' that should be bought.

The race against crime

For those waiting more than the perennial to stand guard over expensive hardware it might be worth investing in an anti-theft alarm.

Remaguard has come up with a device which sounds off a din if a connected alarm is disturbed. One simply has to plug the computer's power lead into the device - then if the wall plug is moved or the power cut Mr Sugar gets an echo of 107 decibels.

This is so loud that the £20 anti-theft alarm has won an award from an organisation called Design Against Crime.

A new image

The programmers of System 3's Last Ninja series have had a new software label formed specifically to handle their future titles.

Although the programmers will continue to work for System 3, their games will now be published under the name Void Image.

Nigel Cousins, UK boss of Mediagenic which markets System 3 software, described the move as a way of giving the programmers a greater sense of identity following the success of the Last Ninja games.

Mediagenic has simultaneously announced another new label called Motion Picture House for a series of one-offs.

Declaring war on sexist software

Sexism in software has been earmarked as a definite no-go by one band of computer crusaders.

CAISE, the Organisation Against Sexism in Software, next week publishes its first newsletter in a special recruitment drive. This for the body claims fifty members of both sexes.

In the forthcoming newsletter it lays down a charter to any one wish-

ing to join. CAISE hopes to curb 'sexist' portrayals of women in computer



• Vogel: Sexism crusade

games advertising. It is also looking to change female roles in the games themselves.

Chairwoman Sandra Vogel explained to Express: 'We want to get rid of some of the misconceptions about computers. It's true that the average home computer is owned by a male but women like to use them as well.'

She said that CAISE

members would busy themselves writing letters to magazines, software houses and the advertising authorities if publishers step out of line. But Vogel admitted that such actions would have little immediate effect. And she stressed that the last thing CAISE wants is a noisy feminist image or that of a strict censor.

• CAISE is on 01 542 7261

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NETWORK NIGHTMARE

**Codemasters
ups prices 50%**

**Mainlan
crash forces
fast revision**

FOR SAGE

GAMES TOP TWENTY FULL PRICE

1	Last Ninja 2 Spectrum C&A CPC	£107.95
2	Football Manager 2 Spectrum C&A ST/Amiga PC/CPC	£107.95
3	Daley Thompson's Olympic Challenge Spectrum C&A ST/Amiga CPC	£104.95
4	Supreme Challenge Spectrum C&A CPC	£104.95
5	Talk Coin-ops Spectrum C&A CPC	£104.95
6	Amalgam C&A	£104.95
7	Cut Run Spectrum C&A ST/CPC	£104.95
8	1943 Spectrum C&A ST/CPC	£104.95
9	Trick Suit Manager Spectrum C&A CPC	£104.95
10	Savage Spectrum C&A CPC	£104.95
11	Menace ST/Amiga	£104.95
12	Elite Spectrum C&A ST/Amiga Electron PC/MSX/CPC	£104.95
13	We Are The Champions Spectrum C&A CPC	£104.95
14	Peter Seaward's Football Spectrum C&A ST/Amiga MSX/CPC	£104.95
15	Hostages ST	£104.95
16	Nigel Mansell's Grand Prix Spectrum C&A ST/CPC	£104.95
17	Typhoon ST	£104.95
18	Road Racers Spectrum C&A ST/CPC	£104.95
19	Gold Silver And Bronze Spectrum C&A CPC	£104.95
20	Gunship Spectrum C&A ST/PC/CPC	£104.95

21	Joan of Archimedes US Gold	£104.95
22	Beam Me Over A Prawn Cocktail! CompuLink	£104.95
23	Snippets • Snippets • Snippets • Snippets Newhouse	£104.95
24	Appalling PR Stunts Newhouse	£104.95
25	Driving Forces Newhouse	£104.95

GAMES TOP TEN BUDGET

1	Joe Blatz 2 Spectrum C&A BBC C&A Electron CPC	£14.95
2	Bomb Jack Spectrum C&A C&A CPC	£14.95
3	Footballer Of The Year Spectrum C&A BBC Amiga PC/MSX/CPC	£14.95
4	Commands Spectrum C&A BBC C&A Electron CPC	£14.95
5	International Rugby Simulator Spectrum C&A	£14.95
6	Gunship Spectrum C&A MSX Amiga PC/CPC	£14.95
7	Ar Wolf Spectrum C&A BBC C&A Amiga PC/CPC	£14.95
8	Advanced Pinball Simulator Spectrum C&A	£14.95
9	Age Of Aces Spectrum C&A MSX Amiga PC/CPC	£14.95
10	Endorphins Spectrum C&A CPC	£14.95

COMPUSOFT/US/LSP



• David Darling: another quid each for these

Codemasters - the firm run by the Darling brothers - has upped the prices of its budget games from their traditional rock-bottom of £1.99 to £2.99.

The firm says the extra money will be ploughed back into game development in order to produce "even better" titles. And it says software buyers won't mind paying the extra because "the games are worth more than that anyway".

It would appear that the success of Eloc and Eloc's £3 games has prompted the decision. More and more software houses are settling on £3 as the ideal budget price with £2 games often being regarded as the poor cousins of gaming.

Old titles already on the shelves will remain at the original price but any new Codemasters £1.99 games are being ruled out.

"The money will be very useful," commented marketing manager Bruce Ewer. "I don't think the extra £1 will make much difference."

Codemasters' success over the past two years has been predominantly based on cheap games which sell exceptionally well to the younger gamers. "Our games deserve to be £2.99," insisted Ewer. "Interior people's games will not come up in price."

This news comes at the same time as an announcement by Codemasters of full price labels. The old Plus label of £4.99 games has been repositioned so that its titles now cost £9.99. And "Codemasters Gold" has been set up to accommodate higher priced games for the 8-bit and 16-bit machines.

SageSoft has rushed out a new version of its networking system Mainlan after it emerged that original copies had been crashing.

The company acted swiftly last week to replace every copy in shops and offices with a debugged version at a cost of several thousand pounds.

The expensive move was authorized after Sage received two complaints that the network hung up if left unattended.

"It's not uncommon for new products to have problems," said Sage boss David Goldstein. "But the necessity of testing prior to the launch should have picked up on this."

The company claims sales worth £400,000 in the three weeks since Mainlan was launched.

Peter Donnelly of Gem Distribution

which handles Sage's products said the move would not cause users or dealers serious difficulty. "Sage are the best people there are at sorting out that kind of problem," he added.

All the users of Mainlan should be registered so Sage is confident that no-one has been overlooked.

The network costs £199 per PC and can handle a maximum of sixty machines.

Goldstein described the launch of Mainlan as "our most successful ever" adding that it had gone "like snow off a dyke".

The market for low-cost networking systems has become extremely competitive with Amstar pitching its own system directly against Sage's.

• More info from Sage on 090 284 7277

Beam me over a prawn cocktail!

Computerized waiters could be at the rage in the near future.

That's the hope of Sunstable based

Checkout Computer Systems which has developed an electronic order taker. Waiters can punch orders into a handheld pad and beam them to an infra-red receiver in the kitchen. The order is then printed out to the chef.

This allows waiters to move from table to table without having to deposit orders at the kitchen, although the food itself still has to be hand transported.

Joan of Archimedes

US Gold will be making its first sortie into the world of Archimedes games at the end of next month. Gold will be getting out the highly praised Joan of Arc at the rather astonishing price of £37.99.



• Joan of Arc: Archimedes boast

Snippets • Snippets • Snippets • Snippets

Smart meet

Smart cards are being heralded as the storage device of tomorrow and interest among the big money research and development people is increasing.

So much so that the second annual Smart Card Conference is to last for three days as opposed to last year's one day. Featuring the usual menu of conferences and discussions the conference begins on March 7th next year at the Hammersmith Novotel in London.

Appalling PR stunts of our time

Newhouse publisher Software Horizons is offering a bottle of champagne to anyone who can guess what its next title is based on.

Dragonage for the ST and Amiga 4, according to Horizons, based on a 17th Century children's game which is still played today. The first person who manages to come up with the name of the game before the 27th of this month gets to quaff the bubbly.

Driving forces

The increasing level of demand for floppy disk drives is so great that Citizen has had to up its production from 140,000 units a month to 200,000. That amounts to 2.4 million drives a year.

It's been estimated that if every Citizen drive were loaded to capacity with text taken from the Encyclopaedia Britannica it would take an ordinary person quite a while to read the resulting printout.

Devpac Amiga Version 2



The Best just got Better!



Devpac Amiga has always been the popular choice for assembly language programming on your Commodore Amiga. When it passed its second birthday we took a fresh look at it and realised there were a few things it didn't do that we, and you, wanted it to. So we re-wrote both the assembler and debugger totally from scratch, allowing us to add features that were not possible in the original versions. We then substantially improved the editor as well to give us an unbeatable combination of features - see the table.

The Editor - true integration

The fast editor is based on the original but with extras like block highlighting, a file requester and the ability to make backups of your source files. The assembler and debugger are both available, instantly, at the press of a key.

The Assembler - no waiting zone

GenAM was always fast but the all-new algorithms means it's even faster, particularly on larger programs. It handles multi-bank code, 127-character significant labels, local labels, improved macros & conditionals, generates directly executable, or linkable code, and a stand-alone version is included so you can use a CLI, a batch file or an alternative editor.

The Debugger - kills bugs, dead

How many times do you write a completely bug-free program? Trying to debug a program by looking at guru numbers is what some development systems leave you to do. We include a disassembler/monitor/debugger called MonAM, which uses its own screen display, leaving your program's output alone. It has a range of different types of breakpoints including count and conditional breakpoints. For example you can stop after the 24th call to print or stop if the contents of mem_ptr become odd. You can also break into runaway programs, or you can even view your source-code files from within the debugger and use multi-bank program symbols.

Ideal for Beginners & Enthusiasts

The editor is fast and easy to use, you can assemble from memory to memory then execute it repeatedly to try your ideas out, all without a disk access. Press a key and you're straight into the debugger, you can even debug programs assembled to memory with their original symbols. No linking is required - the assembler can generate directly executable programs immediately. Interested in hacking somebody else's code, such as the ROM? - with the debugger you can disassemble to disk with automatic labels, including system calls. All programs will work on a 60-column display.

Ideal for Professionals

If you're not using Devpac for software development then you'd better hope that your rivals aren't either. Why wait for your editor to load a file or for your assembler to churn through it - GenAM is the fastest professional assembler available and is fully source code compatible with the MCC assembler. We write in 68000 assembly language every day so we understand what you need.

Ideal for You

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Devpac Amiga 2 - There is No Competition

Devpac-Am 1	MCC-Am	K-Solo	Devpac-Am 2
-------------	--------	--------	-------------

Screen Editor	Y	Y	N	Y
Handles tabs as single chars	Y	N	N	Y
Step through assembly errors	Y	N	N	Y
Automatic backups	N	Y	N	Y
Integrated assembler	Y	N	Y	Y
Integrated debugger	N	N	Y	Y
Macro parameters	10	10	9	36
Multi-line macro calls	N	N	N	Y
Conditional assembly	Y	N	Y	Y
Case flexible	Y	Y	N	Y
Local labels	N	Y	N	Y
Executable, relocatable code	Y	N	Y	Y
Linkable code	Y	Y	N	Y
Multi-SECTIONS	N	Y	N	Y
INCLUDE binary files	N	N	N	Y
Assemble to memory	N	N	Y	Y
Stand-alone assembler	Y	Y	N	Y
Section types	Y	N	N	Y
Debugger supplied	Y	N	Y	Y
Disassembler	Y	N	Y	Y
Multi-window	N	n/a	N	Y
Source-code viewing	N	n/a	Y	Y
Single-step	Y	n/a	Y	Y
Breakpoints	Y	n/a	Y	Y
Conditional breakpoints	N	n/a	N	Y
Full expression evaluator	N	n/a	N	Y
Multi-screen	Y	n/a	N	Y
Break into running programs	Y	n/a	N	Y
Disassemble to disk	N	n/a	N	Y
Example program source code	Y	Y	N	Y
Operating System libraries	Y	Y	N	Y
Version	1.2	1.1	1	2.0

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1512	442.00	887.00	N/A	871.00	796.00	891.00	891.00	891.00	891.00	891.00
COLOR	505.00	600.00	N/A	796.00	807.00	796.00	807.00	807.00	807.00	807.00
1512	566.00	730.00	N/A	816.00	826.00	826.00	826.00	826.00	826.00	826.00
MONO	449.00	514.00	654.00	675.00	776.00	801.00	801.00	801.00	801.00	801.00
1640	484.00	681.00	863.00	776.00	896.00	796.00	796.00	796.00	796.00	796.00
CGA	449.00	514.00	654.00	675.00	776.00	801.00	801.00	801.00	801.00	801.00
1640	484.00	681.00	863.00	776.00	896.00	796.00	796.00	796.00	796.00	796.00
CGA (1000)	754.00	903.00	1124.00	916.00	1233.00	1124.00	1124.00	1124.00	1124.00	1124.00
1640	879.00	994.00	1293.00	1166.00	1333.00	1124.00	1124.00	1124.00	1124.00	1124.00
2086	579.00	686.00	917.00	777.00	888.00	749.00	804.00	804.00	804.00	804.00
MC160	663.00	799.00	1055.00	894.00	1318.00	1124.00	1124.00	1124.00	1124.00	1124.00
2086	717.00	833.00	1086.00	916.00	1244.00	1044.00	1044.00	1044.00	1044.00	1044.00
CGA	825.00	949.00	1216.00	1084.00	1318.00	1124.00	1124.00	1124.00	1124.00	1124.00
2086	860.00	920.00	1147.00	1007.00	1176.00	1088.00	1108.00	1108.00	1108.00	1108.00
12" HRCO	939.00	1048.00	1320.00	1158.00	1387.00	1176.00	1176.00	1176.00	1176.00	1176.00
2086	999.00	1101.00	1341.00	1158.00	1371.00	1176.00	1176.00	1176.00	1176.00	1176.00
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STOP THIS EXPLORATION

For a while now, I have been getting more and more fed up with the increasing amount of sexism in computer software and advertising. It seems to me that the objectification of women that is making them, or specific parts of their anatomy into objects of male pleasure has recently become a requisite of many games. I am an SF writer, and see the trend clearer in this format, but it seems even stronger in 8bit user bases, and is growing at an alarming rate.

There are really two reasons that I feel the treatment of women as objects is such a bad thing. The first is that it destroys the idea that women are individuals, and creates instead the idea that women exist only to please men. The use of women in this stereotyped way exists throughout the media, and in fiction, in jobs, in fact at all walks of life, but of the software industry it is particularly harmful as it is operating on the young, many in their early teens, whose ideas about the world are still being formed. It is also against the stereotypes of male ideas presented of the masculine, hard hero who always saves the world (or universe).

The second reason is that women make up a large part of the home micro user base - in fact there are more of us than either software houses or magazines care to admit and it is about time software houses realised this and started to produce material we might be interested in (and I don't mean cookery, knitting and babycare programs).

So, OAGS has been born. OAGS stands for the Organisation Against Sexism in Soft

ware, and is a user group aimed at anyone who wants to change the current face of the software industry. Specific campaigns will be run as and when members indicate something they're not happy about. The group has a newsletter we offer a nationwide network for, giving help and advice, airing our grievances, taking positive constructive and well-coordinated action, and hopefully offering some alternative software written by members!

You don't have to be a woman to join OAGS - I am aware that a good many men don't like the way software is going, and banning you from membership would be doing exactly what the industry is doing to women - in fact we have a large number of male members!

Anyone interested to know more about OAGS should write enclosing an SAE to Sandra Vogel, 3 Alden Court, Stanley Road, Wimbledon, London, SW19 8RD.

Sandra Vogel, OAGS

✓ Good luck, Sandra. You have an uphill struggle ahead of you.

MONUMENTAL FEAT

I write with congratulations to a piece in Tech Tips - preview issue bundled free with ACE! You managed a monumental feat of getting all your tips for the \$8000 instruction set inaccurate or downright incorrect! More research next time - you are only adding confusion.

Steve O'Leary, Sheffield

PS Good first issue. I damped PCW back at June but your mag seems to be able to fill that weekly gap!

✓ Absolutely right about the cook up! Sorry and thanks for the detailed corrections you supplied - but I think it's better just to say to anyone who's baffled, forget the whole thing. We erred. Goaled. Banged. Misfired. Screwed up. Miscommunicated. Printed garbage. Passed on falsehoods.

(Ignore that snippet in it's entirety. Delete it from your copy. We've failed. Four members of staff have been fired and the rest are being sent on three hours' hard physical work.)

Thank goodness it was only the preview issue. There were NO mistakes whatsoever

in issue 1. Except that we said The Mini Saga was from US Gold instead of from Electronic Arts, Oxi, and that Amstrad's PC2086 is a 2086 PC. Not to mention ...



**HAMMM... FAR BETTER THAN IT USED TO BE...
THANKS, HOWEVER...**

Thanks for the great review of Pioneer Plus (preview issue). It seems however your reviewer missed a whole mega portion of the game. A major feature for the player is programming drones to act aggressively or defensively, on or off screen. There are 5 types available.

These programs can be saved and used again. Drones can be used to collect fuel, destroy minefields, guard the Mother ship and so on. You make no mention of the Star Cluster maps and the use of the screen overlay. These again are vital to getting to the real death of the game.

The game is intelligent and learns your patterns, then it gets mean... and fast... as the game levels unfold you find a story developing as the colonists prepare to leave the homeworld. A good test of your drone

programming and probability is whether you are using the keyboard at the same time as the mouse!
Peter Helene, Mandarin Software
✓ He only did it to give you a free second opportunity to play your game, Peter.

THE LASER IS WORTH IT

An interesting new dialogue from a publishing house I trust to deliver high quality material (except ST Amiga Format!) However I shall wait a few issues before taking a subscription in case game reviews take over.

I would like to take the advice in Tech Tips to forget the ST Mega and laser printer and to use a typesetting agency for off-site laser setting. I have recently upgraded to this equipment and not only is the Atari laser worth its money, but it is very cheap to run and provides genuine near-typeset copy. I have managed to earn half the cost of the complete system in one job alone and work for the laser is pouring in.

The public can seldom tell the difference between typesetting and laser setting. It appears that many adverts in your magazine are laser set. Most people are satisfied with the Times or Helvetica typefaces supplied as standard with many HP and DTP programs, especially when you tell them the difference in price between laser and type setting. Typesetters take time and money to set your copy and either want complicated codes added to the copy to produce a gallery looking paste-up or need a PostScript file to read. The Atari (or other) laser printer is fast, on-site, cheap and gives the user total control over the line in progress.

And you neglect to mention that having a laser printer can generate work that would otherwise go elsewhere or not be done at all. Customers are amazed as you change the style and drag the layout of their work about with just a click of a mouse's tail. When it is to their satisfaction the laser produces the finished copy in seconds.

Mark Tennant, Hove, Sussex

✓ No wonder he doubts that laser printers are wonderful things - we've got four of them. The point was simply that unless you have lots of regular output, the money could be better spent elsewhere.

The editor of ST Amiga Format also had a message for you, but we censored it.

WE'RE THE SKODAS

Thank you for a computer mag that acknowledges that there is a lot of people out there who own Spectrums. I have got totally fed up with your main rival's 70p-a-week effort which seems to think that only the Atari ST or Amiga are worth writing about. I admit we are the Skoda owners of the computer world, but we are still a sizeable market.

Don Griffin, Hammersmith, London
✓ If you're the Skodas, who are the Reliant Robins? Answers on a postcard...

MMMMMM... MSX

I'm still writing to thank you for supporting the MSX machines. Other people think it is dead, but with the games being churned out by new companies and the support of your magazine, it is being revived.

Tell Keith Neal to keep up the excellent work - you couldn't have picked a better person to do the column.

Kevin McGahan, Belfast

✓ How much did he pay you, Kevin?

YES, HE'S BONKERS

Congratulations on a great new weekly Express definitely fills a gap that's been around for a few years. Okay that's enough sycophantic stuff (I know you'll get plenty of that anyway). Now for my sage advice and criticism!

1. DO NOT go to the way of certain other computer weeklies that were once 'popular' with me. Too many other magazines have started off as a balanced mix of technical articles, news and reviews and ended up as a games review vehicle. There's more than enough of those already! Your first edition managed the balance between games and technology very nicely.

2. Yes, Alan Sugar is completely bonkers for doing to the Spectrum what he should be doing to his wife! The Spectrum is still a great machine. (And that comes from someone who works on Apollo workstations and mainframes).

3. The article on PC graphics was great. However, I would have liked a mention of VGA. I'm still not sure where it stands compared to VGA. Particularly, does VGA have built-in graphics functions like VGA? Should I care? Incidentally, I haven't yet found a naughty word which fits 'Naughty'. Perhaps I'm too sweet and innocent.

4. Re BASIC Reform. Yes, you can write bad code in Pascal but you have to work hard at it. BASIC doesn't

encourage good programming style, which is okay at the moment but should not be tolerated at school. I had a definite advantage in the first year of my Computer Science degree because I had, unlike most, programmed in a true procedural language before. BASIC is fine as far as

it goes, but no amount of reworking will ever make up for its poor underlying philosophy. Having said all that, I still have yet to see a good, all purpose, declarative or procedural language.

5. GEM does some whizzo things, but it's still a pain. When is someone going to come up with a truly usable front end?

6. Why was half of the SPEX column devoted to a single game, the R-Type. Wouldn't something like, 'A truly mighty, awesome game. See ACE December issue for a full review' have been a little more economical. (Okay, maybe too economical, but you get the idea)

Kiri Lane, Leicester

✓ 1. No, we won't.

2. You're bad, you.

3. VGA Professional Graphics Adapter was an IBM subset of EGA which never really caught on. No VGA hasn't had VGA's inbuilt graphics capabilities. (No! I stood for 'silly', the worst Skelter swear word anyone here knows.)

4. Well, up to a point.

5. Microsoft has been trying (and failing) for the last two years with Presentation Manager. Maybe you should buy an Apple Mac.

6. Because the poor chap only had 24-hours to write the first column. Not everyone delivers games, you know. Anyway, you've done enough to win this week's mystery prize. I reach into the sack and pull out - oh dear, it's a game. A compilation of 10 Great Games, in fact. That'll learn you.

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We proudly present the complete guide to choosing the machine that's right for you.

The worst thing in the world is to spend £500 on a gleaming new piece of kit only to realise a week later that you goofed. Tracking down the right computer is a process fraught with hazards, but you can avoid 90% of them by looking carefully at the next five pages.

Most people should make their choice from one of six different machine ranges. We present a detailed look at each of the six, listing all their main advantages and drawbacks.

If that doesn't settle your choice, look carefully at the big software ratings box on page 20. So long as you select a machine which rates well in the areas you are most interested in you won't go far wrong.

One thing you mustn't do is simply walk into a high-street shop with a blank cheque and expect to be given reliable advice – our visits to local

shops suggests strongly you could be seriously misadvised. Specialist computer stores would be a better bet, and there is certainly a lot to be said for seeing the machines in action.

Which Computer?

START HERE

Begin by asking yourself two fundamental questions:

1. How much can you afford to spend?

If it's less than £200 your choice is immediately limited to one of the older 8-bit computers (see the Jargon-Buster box for an explanation of 8-bit and other terms.) Such as the Sinclair Spectrum or Commodore 64.

But do remember to check what you're getting. For example, the Amstrad CPC range cost substantially more than the equivalent Sinclair models but include a bundled monitor which accounts for most of the difference.

2. What would be your main use for it?

If it's primarily business use, you will almost certainly be best off with a PC.

If games are your main aim – and price is no object – you should probably choose between the ST and Amiga.

If, like most people, you want to do a range of things on it your first task is to try to put them in order of priority.

JARGON-BUSTER

Here are brief definitions of some of the more common technical terms you'll be up against.

HARDWARE: The computer itself: keyboard, monitor, cabling, etc.

SOFTWARE: Programs which control what a computer does. A game or wordprocessor you buy in a shop is software.

RAM: The memory used by a computer to store programs loaded into it from disk or tape or typed in from the keyboard. The greater the

amount of RAM (measured in kilobytes [K]) the bigger the programs your computer can run.

ROM: 'Read Only Memory'. Contains programs stored permanently by the computer. Many of today's computers have very little ROM, preferring to load in even their basic operating programs from disk.

BYTE: The basic measure of memory. One byte can store a single letter of the alphabet or number up to 256. 1024 bytes make a kilo-

byte (abbreviated to 'K'). So a 512K RAM computer has 524,288 bytes of RAM memory.

CENTRAL PROCESSOR: The microchip at the heart of a computer which determines to a considerable degree the machine's power. Also known as CPU (Central Processing Unit).

8-BIT/16-BIT: Describes particular types of central processors according to how much information they can process at once. A 16-bit processor (such as the Intel 8086) can process twice as much information in a single step, giving it far greater power than 8-bit chips (such as a 280 or 6502).

THE SIX MAIN OPTIONS:

Sinclair Spectrum

MODEL Plus 2 • £139.99

What you get Keyboard, built-in tape deck, TV connector, joystick, selection of software.

MODEL Plus 3 • £199.99

What you get Keyboard, built-in disk drive, TV connector, joystick, selection of software.

Hardware Advantages

- The Spectrum is one of the cheapest micros around.
- Built-in tape deck or disk drive as standard.
- 128K of RAM.
- Built-in MIDI socket.

Hardware Disadvantages



- Poor quality TV display.
- Limited range of colours - maximum of 8, from a palette of 8.
- Artifacts Problem - items used for graphical objects changing colour as they move around the screen, because of the limitation of only 3 colours allowable in any full pixel area.

- No graphics hardware facilities for sprites or scrolling - software has to emulate these functions thus slowing down their execution speed.
- Barely adequate sound capability.
- Non-standard joystick ports - you'll have to buy special joysticks or an interface (using around £10) which allow you to use normal joysticks.
- MIDI socket is non-standard.

Software Advantages

- One of the largest selections of games software for any micro.
- Games software is very cheap - ranging from approximately £2 to £12 on tape (normal price is £9 tape/£12 disk).
- Majority of games titles released on Spectrum format.
- Supplied with easy to use BASIC.

Software Disadvantages

- The range of software is, on the whole, limited to games.
- Lack of dedicated graphics hardware places constraints on the type of games implemented, e.g. small areas of screen used for animation, more colour screen layout and relatively slow speed.
- Versions of games titles tend to be the worse of all the micro formats in terms of audio-visual quality.
- All the advantages of 128K of RAM are not used, because software companies want to maintain compatibility with previous models, i.e. many games titles only use 64K of RAM.

What does the future hold?

Despite the increasing popularity of 16-bit machines, the Spectrum still attracts healthy support from the game software companies, and is too popular to go away overnight. - but as 36-bit software improves, the Spectrum is finding it increasingly difficult to seriously compete. Therefore games software support is likely to dramatically tail off within the next two years.

Who is it for?

The Spectrum is still a great little machine for first-time buyers with a limited budget. The games software is cheap and there's plenty of it, most of it within the limits of kids' pocket money.

Commodore 64

PACKAGE 1 Hollywood Pack • £149.99

What you get C64C, C2N tape deck, joystick, selection of film/TV tie-in software.

PACKAGE 2 Home Entertainment Pack • £199.99

What you get C64C, C2N tape deck, joystick, 128K personal monitor, Yamaha electronic keyboard, bundled software.

Hardware Advantages

- The C64 is the most popular micro in the world, with over three million units sold worldwide.
- Tape deck now included in package.
- Dedicated graphics hardware facilities for sprites and scrolling - allowing smooth and fast animation of graphics objects.
- Easily the best sound performance from any 8-bit micro.

Hardware Disadvantages

- Tape deck is very slow - fortunately software companies now employ Turbo Loaders, which decrease the time spent loading.
- Disk drive is expensive, slow and noisy - Turbo Loaders help with speed problems, though.
- Limited colour range - maximum of 4 colours within any full pixel square, out of a palette of 16.
- Using the maximum of colours places restrictions on graphics/ horizontal resolution, making graphic objects appear blocky.
- Serial port is non-standard - interfaces (using around £20) have to be purchased in order to use non-Commodore printers.

Software Advantages

- Excellent selection of software - mainly games and program-writing utilities.
- Software not only produced in the UK, but USA and Germany as well, providing a wide variety of software.
- Games usually the best conversions out of all the 8-bits.

Software Disadvantages

- BASIC supplied is the worst on any micro.
- Games software is usually £1 cheaper than Spectrum counterparts, normal price is £10 tape/£15 disk.
- Only 64K memory means many games have to be multi-loaded (the program is divided into various parts, with each section loading in separately) - which can be very annoying.
- Relatively few non-linear titles available, and those that are, appear primitive in comparison to their 16-bit counterparts.
- Processor intensive software such as solid 3D games run very slowly, due to the slow clock rate of the C64's CPU.



What does the future hold?

As with the other 8-bits, the C64 is starting to look a bit dated against the 16-bit micros, but it can often still match most that it owns. It may well be the best-supported 8-bit in 1989-90.

Who is it for?

For most entertainment usage, the C64 easily surpasses the 16-bit competition in terms of software and hardware capabilities. So long as you don't want to get in to much serious use, the C64 is probably the best 8-bit to go for.

Amstrad CPC

MODEL CPC 464+£399

What you get Keyboard, built-in tape deck, colour monitor, TV tuner, audio alarm clock, desk, joystick, compilation of 17 games titles.

MODEL CPC 6128+£499

What you get Keyboard, built-in disk drive, colour monitor, TV tuner, audio alarm clock, desk, joystick, compilation of 17 games titles.

Hardware Advantages

- The Amstrad CPC packages contain the biggest selection of micro-bundled 'goodies'.
- Built-in tape deck or disk drive as standard.
- Colour monitor as standard.
- CPC 6128 has 128K of RAM.
- Disk drive is fast and reliable.
- Best 8-bit colour range - max 16 on screen out of a palette of 25.
- Good range of expansion ports for printers, disk drives, etc.
- Flatter 8-bit keyboard - good for word processing.

Hardware Disadvantages

- Tape deck is only reasonably fast and reliable.
- Disk drive uses expensive 1 inch disks.
- Using maximum range of colours produces a similar effect to the C64 problem of 'blocky' looking graphics.
- No-graphics hardware facilities for sprites or scrolling.
- Sound chip is basically the same model as the Spectrum's, albeit with (very) rudimentary stereo capability.



Software Advantages

- Extended colour palette can produce the most colourful 8-bit version when used correctly by the software companies.
- BASIC supplied is second only to the BBC's in the 8-bit field.
- Substantial range of games and business titles, although not as extensive a games selection as the Spectrum or C64.
- Excellent word-processors available (eg. Protext).

Software Disadvantages

- Many software companies now declare CPC sales of their products to be too low, and so they convert only major titles from the C64 and Spectrum to the CPC.
- Lack of dedicated graphics hardware produces more grained problems than their absence in the Spectrum - with CPC games running much slower than their C64 and Spectrum partners.

What does the future hold?

Of the 8-bit machines mentioned in this survey, the CPC is the one likely to lose most software support over the next two years - with the Spectrum and C64 receiving priority because of their superiority in terms of 8-bit games sales figures. However the machine still has a very loyal user base, and some non-games companies promise continued long-term support.

Who is it for?

The CPC machines offer the best value for money - on a hardware basis - not of any of the micros surveyed, but this is counterbalanced by their outstanding lack of support from game software companies. If you are your main criterion you'll do better elsewhere. But if you want a good value package on which you can word-process, program and have a lot of fun, it's not a bad bet.

PROS AND CONS

Atari ST

MODEL 520 STFM • £299.99

What you get Computer with disk drive + mouse. Plugs into your TV for buy separate monitor.

BUNDLE OPTION ST Superpack • £399.99

What you get All the above, plus joystick, 21 games and a business software package.



Hardware Advantages

- Fast Motorola 68000 16-bit CPU.
- Built-in disk drive.
- 512K of RAM.
- Good screen resolution - high res-640x400 (mono), medium res-640x200 (4 colours) and low res-320x200 (16 colours).
- Great range of colours - maximum of 36, set of a palette of 312.
- MIDI port as standard.
- First-class keyboard - great for word processing.
- Excellent selection of expansion ports for monitors, extra disk drives, printers, modems, hard disks, etc.

Hardware Disadvantages

- Lack of dedicated graphics hardware for sprites and scrolling - while not as an acute problem as their lack on the 8-bit, software still has to emulate these functions using up valuable processor time.
- Sound chip is poor, being a similar model to the one used on the Spectrum and Amstrad, thus totally inferior to the Amiga and even the C64's sound chip.
- Falls short of the Amiga in raw graphics power.

Software Advantages

- Built-in, easy to use, WIMP environment.
- Good range of games, hobby and (to lesser extent) business software available - but still not as extensive as the Spectrum and C64 for games, and very short of PC for business titles.
- ST version of games titles far superior to the 8-bit versions, in terms of multi-visual quality.
- Built-in MIDI port has prompted software companies to produce a variety of music packages for the ST, making it the number one choice for musicians.

Software Disadvantages

- Software is very expensive - games titles range from £10 to £25 (journal price is £26).
- Version of BASIC supplied is terrible - extremely slow, difficult to use and bug-ridden.
- Although there was a steady release of business software when the ST was launched, that has now gradually disappeared.

What does the future hold?

As far as games are concerned, the future belongs to the ST and Amiga. There should be a steady increase in game software support over the next three years at least. The ST is also attracting plenty of hobbyist applications, especially in music, but its future on the business side is less certain.

Who is it for?

The ST is a wonderful combination of high power and low price. It currently has a distinct lead over the Amiga in terms of software support in the UK which in practice more than makes up for its slight technical inferiority. A powerful, versatile computer which can appeal to a very wide range of people.

Commodore Amiga

MODEL A500 • £399.99

What you get Computer keyboard with built in disk drive, mouse, TV modulator

Hardware Advantages

- Fast Motorola 68000 16-bit CPU.
- Built-in disk drive.
- 512K of RAM.
- Brilliant screen resolution - a myriad of different screen modes, with the normal one being 320x256 (32 colours).
- Great range of colours - up to 4096 on screen.
- Superb stereo sound chip.
- Dedicated graphics hardware for sprites and scrolling.
- Built-in blitter to speed up graphics animations.
- Good-quality keyboard.
- Excellent selection of expansion ports for monitors, extra disk drives, printers, modems, hard disks, etc.
- Has the option for a Genlock device which allows you to mix video images and Amiga graphics.

Hardware Disadvantages

- Disk drive is slow, noisy and sometimes unreliable.
- Power switch is separated from the keyboard in a separate power supply (extra clutter).

Software Advantages

- Growing range of games, programming and graphics software available.
- The Amiga versions of games titles usually far superior to the 8-bit version, in terms of audio-visual quality - can also be superior to ST versions.
- Dedicated graphics hardware for sprites and scrolling, with even professional studios using the Amiga to produce displays for TV shows like *Ci's Network 7* and *The Chart Show*.
- Good version of BASIC supplied.

Software Disadvantages

- Software is very expensive - typically £25 for a game.
- Most games titles, when converted over from other machines, don't use the extra graphics and sound capabilities to the full.
- Not many business software titles available.
- WIMP environment and operating system are very awkward and slow to use - with part of it having to be loaded in from disk every time you reset the machine.

What does the future hold?



has achieved real status among software designers around the world, especially in USA and Germany - with many programming and graphics utilities available now, and more on their way.

Who is it for?

The Amiga was originally designed as, and currently is, the ultimate games micro - its superlative audio-visual capabilities haven't even begun to be stretched yet. If you want the extra facilities, and can afford the asking price, the Amiga is definitely the machine to go for.

PC Compatibles

MODEL Amstrad PC 1640D mono • £374

What you get 840K computer with single 5.25" disk drive, keyboard, mouse, monitor, mouse

MODEL Amstrad PC 1640D CGA • £399

What you get 840K computer with twin disk drive, keyboard, colour (CGA standard) monitor, mouse.

Hardware Advantages

- IBM PC compatible.
- Built-in disk drives to suit your needs (and price bracket).
- 640K of RAM enough for many business needs.
- Ready expandability through standard internal expansion slots.
- Good-quality keyboard, perfect for word processing.
- Very wide range of add-on devices, eg hard disks, available at very competitive prices.

Hardware Disadvantages

- Cheaper versions limited in mouse display.
- CGA display has only 4 colours available in a 320x200 screen. Poor for games and not ideal for word-processing.
- Location of power supply in monitor limits upgrade flexibility.
- Sound consists of beeps from a built-in speaker.

Software Advantages

- Massive base of high-quality business software.
- Specialist applications to suit almost every need.
- Continued support assured because of the size of the PC user base.
- Increasing number of entertainment releases in UK.

Software Disadvantages

- Games software is quite visually inferior to many 8-bit titles, let alone the ST or Amiga.
- And is expensive - typically £25.
- Some specialist applications, especially involving high-resolution colour graphics, would work better on other machines.



What does the future hold?

The PC format is here to stay - by being an 'industry standard' machine you virtually guarantee that you won't be left in the lurch in the foreseeable future. However, the state-of-the-art PCs are now substantially more powerful and applications developed specially for these will not be suitable for use on a 16-bit.

Who is it for?

IBM PC-compatibles are the only micro worth considering for any serious business use, and the Amstrad PC1640 range represent a very good compromise between price and features.

If you want to make money out of your computer and don't mind mixing out a little bit on state-of-the-art entertainment, one of these is probably your best bet.

Other models

There are literally hundreds of different PC models on the market, starting from IBM (the Sinclair PC286) and ranging up to 68000 and beyond. The main factors which affect the price are the processing power (ie speed) of the machine, its disk storage system and its display quality. You have to define your needs and your budget and then make your choice.

ASTONISHING advice from the high-street

Most people in search of a computer take the obvious step of a visit to one of the high-street stores in search of advice. So we decided to do the same and dispatched intrepid reporter ANNE STORER, bristled with hidden tape recorder, to the Retailer's Association of Britain, London, Central and South.

But ALL the advice he received was awful.

Not ALL the salespeople in the shops he visited will have been this bad, and not ALL branches of these shops will be the same.

But nevertheless be heard enough to suggest that a high-street shop is not guaranteed to be the best place to go to for advice.

Here follow the edited 'live' tapes together with our rough memories.

ROOTS "16-bit means the edges are rounded off"

So what does 16-bit mean?

Well this (Nintendo game console) is an 8-bit which means there's 8 bits for every character on screen - so it's a 16-bit it means that all the edges of onscreen characters are rounded off because it's twice as defined again, so the graphics are absolutely superb. It means it's twice the capability of any 8-bit machine really - twice as fast, more memory.

Confusion, alas, between graphics was clear and any passing down...

Are there any plans to have anything more educational on the Nintendo?

There's a limit to how far it can go - it'll have to use the joystick and the guns. Unless Nintendo invent a keyboard to go into the joystick then they could start bringing out educational software for it - there's absolutely no reason they couldn't - one disadvantage though would be that there's no way you could store what you write.

Which being translated is 'No'.

How many colours does it have?

I think there's 128 - just basic shades of your basic colours.

It's make that 52.

LASKY'S "You can tip cups of coffee on them"

Is there a lot of software for the Commodore 64 then?

Yes, there's loads - and then you can run Vic 20 games on it too - you can use any Commodore games as long as they're lower than 64.

Totally, utterly wrong apart from the first three words.

What's that part for on the back?

That's so you can plug in a 64bit expansion.

A WHAT?

On the Amiga here, what do you use the mouse for?

It's just for graphic designs, broad sheets, if you want to change to a certain page say.

O, cloutin', that'll 'spreadsheet' it.

What's multi-tasking then?

High-speed multitasking is just your actual loading up of software on the disk drive. It actually loads quicker.

It's nothing to do with disk loading.

Can you get bigger disks?

Yes, there's 5 inch ones for business.

Really being reduced by 3 inch disks.

Do they contain more?

Yes, it all depends - they'll hold a lot more.

Wrong! They normally hold a lot less.

So is it better to buy a monitor then?

Well, if you already have a colour TV you can just say run the video on Channel 12 and run the computer on Channel 11. You get a better reception and clearer graphics. But you can buy a colour monitor if you want to - just for the better system.

Oh?

Do they [Commodores] go wrong very often?

Very, very rarely - not at all.

Except for mine and my brother's.

Can you run business software on the Amstrad CPC?

Yes, you can but if you want both business and games you need a very large system that will take both - like the Commodore Amiga - it has a large enough memory to take business software.

Yes - it's just that not much business software were made for it.

How many colours do you need?

There's the whole spectrum of colours on a Commodore.

Good just better than Dickens.

Are the Commodores likely to go wrong then?

You can go cups of coffee on them - they're virtually idiot proof.

Whaaaaa! This will attack any keyboard, and coffee on a monitor could kill you!

DIXONS Business Centre

"Amstrads wear out..."

Is it best to go with IBM?

Well, it depends how much you want to use it - if you use it 8 hours a day five days a week - then it'll last five years whereas an Amstrad will have worn out by then - we're talking bad quality here.

Sam Napp won't like that one bit.

What do you suggest then?

It all depends on what you want to use it for - the software is far more important than the machine. Decide the programs you want to run and then choose a machine to run them on.

Very good point, well done.

What's the best way to decide on which computer to buy?

Well it's entirely up to what you want - it's best to sit down and write a list of all the things that you'd expect manually at the moment that are a total drag and you want a computer to do.

Such as the washing up?

So if I want a computer for a long time, I'd be better off buying an IBM than an Amstrad PC?

Of course - it's like buying a car, you can buy a Ford Escort or a BMW - you can guess which is going to last longest - at the end of the day they take you from A to B. But in 5 years time IBM will still be going strong and you'll be able to get parts - with Amstrad you get what you pay for - with IBM you can resell for 42% of the original value.

In fact there are plenty of PCs as reliable as an IBM but cheaper. You see for the same.

So are Amstrads unreliable?

No, they're very reliable - but you get what you pay for. On the whole - considering the amount they sell - they're very reliable.

Backhand compliment, or what?

DIXONS

"Business software on cassette"

What is K?

K is an expression of memory usually expressed as RAM - K will usually give you 3 pages of A4 - so on a Spectrum Plus 2 128K will surely be enough. When you load a game system in it only takes a 1/4 of memory so the rest is up to you.

When used to store text, 1K is about 170 words - less than one sheet of A4 on our system.

What's the benefit of having a disk drive?

It's faster and it's more of a world standard - most word processors use discs, IBM use it... for future expansion disk is it.

Start off...

Would you recommend a PCW for a child?

Not really, they'd just be too daunted by the keyboard - whereas on the Plus 2 all the functions are simple.

Relatively speaking...

Does the Plus 2 have many colours then?

Oh yes! there's 16 shades of colours - so if you hook it into your TV at home - you'll get the full scope of colours.

The full Spectrum of colours, man.

Can you get more serious software for the Plus 2 then?

It's limited because cassettes for business systems aren't that readily available.

True.

But there are some are there?

Yes... absolutely.

Not all at least 3 years old.

COMET

"You can't link it to a telephone"

Are the Amstrad CPCs good machines?

Yes, you can get everything for them - you can add-on to them, you can expand them to their full potential - they're not just there you can expand them on for ever more in time.

Until support drops up from them, in a year or two?

How can you expand them?

Disk drives, second disk drives, printers - to its full potential - it's not just a computer - you can take it much further than that.

By spending more money with it.

So can you link them up to telephones then?

Nothing that far ahead, no.

Not heard of a modem?

So what's this new Sinclair PC200?

Well, we don't know too much about it - it's just on the market - it's more of a business machine though you can get games for it.

Hardly an ideal business machine.

You say it's IBM compatible, what does that mean?

Well, you can just transfer IBM programs and run them on this computer - it's a form of software.

Oh?

Can you run it on a telly?

No, it has to be run onto a monitor - there are the right connections to go to a television but with the graphics you'll lose a lot out. If you want to put it onto a normal television.

The PC200 has been designed specifically for TV use.

Is there much difference between the games on this and other Amstrads then?

Oh yeah, they're much better on this one.

Except there's only four colours!

Can you expand this one as well?

I don't know - it's new to us at the moment.

Why not just invest in an Amstrad? - everyone else does.

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THE FASTEST WAY TO GET NOVICE USERS UP AND RUNNING

THE FASTEST WAY TO GET NOVICE USERS UP AND RUNNING

The Crucial Software Factor

Unless you are yourself a programmer, a computer without programs to run on it is worth nothing. Few people today would buy a Betamax video recorder, whatever the merits of the system itself, because Betamax videos are few and far between. Similarly just because a computer

is in theory capable of running, say, business software, doesn't mean you'll ever actually be able to buy any.

So the single most important thing for you to establish is whether the computer you're considering has in existence a wide range of the right

kind of programs, and whether new programs will continue to be produced for it.

For both these reasons you should study this table very carefully. It breaks down software into four main types (with hobby including art, music, and other non-game leisure programs.)

	SOFTWARE QUALITY				SOFTWARE QUANTITY				SOFTWARE PROSPECTS				FRIENDLY
	GAMES	HOBBY	BP	BUSINESS	GAMES	HOBBY	BP	BUSINESS	GAMES	HOBBY	BP	BUSINESS	PRICES
SPECTRUM	***	**	*	*	*****	**	*	*	***	*	*	*	*****
COMMODORE 64	*****	*****	**	*	*****	*****	*	*	*****	**	*	*	****
AMSTRAD CPC	***	**	***	***	***	***	***	**	**	**	*	*	****
ATARI ST	*****	*****	***	***	***	***	***	***	*****	*****	***	**	***
AMIGA	*****	*****	***	***	***	***	***	***	*****	*****	***	**	**
PC COMPATIBLES	**	***	*****	*****	***	*****	*****	*****	***	*****	*****	*****	**

The other options

Although most buyers will want to opt for one of the six models featured on the previous pages, there are other very good buys for people with specific needs.

PORTABLE COMPUTING

Look hard at the **Sinclair Z88** lap-held, or (if you can afford it) one of the **Toshiba** lap-held PCs.

WORD-PROCESSING

If this is your main requirement you should consider an **Amstrad PCW**. The £256 model costs just £349 + VAT and includes mono monitor and printer. Great value!

EDUCATION

Acorn's overpriced **BBC micro** still dominates the education market. If you're buying purely to buy your kids educational programs, this one will give you the most options.

DESK-TOP PUBLISHING

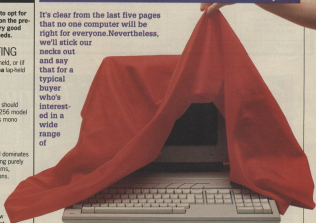
Although there is good software now for PCs, STs and Amigas, the market leader is still the **Apple Macintosh**. Buy a colour Apple Mac 2, a PostScript laser printer and Quark Express layout software (total bill some £10,000) and you can start your own publishing business! (Express, by the way, is laid out entirely on Macintoshes.)

TECHNO JUNKIES

If your only desire is to have state-of-the-art hardware you could spend £800+ on an **Acorn Archimedes**. There's very little software for it but its central processor sure is hot stuff!

REVEALED! The best all-round buy

It's clear from the last five pages that no one computer will be right for everyone. Nevertheless, we'll stick our necks out and say that for a typical buyer who's interested in a wide range of



uses for the machine – including games, graphics, music and word-processing – the best value computer to go for this Christmas is ... the **Atari ST!**

Prices start at £299 for the basic model, although to get the most out of the machine you should double that budget and include a colour monitor.

It's a great-value machine and

though technically inferior to the Amiga in some respects, it is less quirky and, in Britain at any rate, better supported.

Buy one now and you can expect several years of exciting computing ahead of you.

PS. Angry letters denouncing this choice and extolling your machine should be addressed to:

Machine Outrage, New Computer Express, 4 Queen Street, Bath, BA1 1EJ

QUESTIONNAIRES

19 NOVEMBER 1988 • NEW COMPUTER EXPRESS • 23

READER SURVEY

QUESTIONNAIRE

6. In the last two months, what have you spent on:

- ☐ a) Games hardware £
☐ b) Games software £
☐ c) Business hardware £
☐ d) Business software £

7. Please list and rate the computer magazines you read (as many as possible):

New Computer Express. /10
 _____ /10
 _____ /10
 _____ /10
 _____ /10
 _____ /10
 _____ /10

8. Please rate the features in this week's issue out of 10:

- ☐ a) Front Cover /10
☐ b) News/This Week (p2-6) /10
☐ c) Letters (p11) /10
☐ d) Buyer's Guide (p15-20) /10
☐ e) Games previews (p25-26) /10
☐ f) Games reviews (p28-32) /10
☐ g) Interview (p33) /10
☐ h) Beginners (p35) /10
☐ i) Tech Tips (p36) /10
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9. Do you intend to use Express Vouchers:

- ☐ a) Every week ☐ b) Most weeks
☐ c) Some weeks ☐ d) Very occasionally
☐ e) Not at all

10. How did you hear about New Computer Express?

- ☐ a) Ad in ACE ☐ b) Ad in Amstrad Action
☐ c) Ad in 8000 Plus ☐ d) Ad in PC Plus
☐ e) Sample copy with ACE
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☐ g) Just saw it on news stand
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10. Which areas would you like to see New Computer Express covering in the future? How can the magazine be improved in general?

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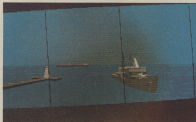
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SOFTWARE INVASION!

Lots of software from across the Channel this week - but then we are in Europe after all. Meanwhile, some home-grown contenders jostle for the Christmas top spot on Page 26

GREMLIN'S GERMAN CONNECTION

Gremlin Graphics have announced they are to market and distribute seven titles to be released over the next six months by software producer Micro-Putner on its Magic Bytes label. Pink Panther is perhaps the West German company's best known product to date, despite disappointing sales after a two month delay in release earlier this year. Of the new titles, USS John Young and Persian Gulf Inferno look most likely to make



• USS John Young (Amiga)

amends. Available on Amiga, ST and C64 in April, USS John Young puts you in command of a US navy destroyer embroiled in a future Superpower conflict over the Middle East. The tasks awaiting you include convoy escort, sub hunting, shore bombardment, rescue missions and direct confrontations with Iranian and Soviet forces.

Persian Gulf Inferno, due out in June on the same format, appears to take the same scenario further. Here you're the only survivor of an anti-terror squad dis-

patched to free 5 hostages and defuse a 1-megaton nuclear bomb about to blow on an oil rig. In this platform shoot-'em-up of 200 screens, you have thirty minutes to complete the job - a daunting mission, since there are hordes of terrorists that need to be disposed of along the way.

Wall Street often conflict of a different kind, taking you into the battle and bustle of high finance, where quick reactions and fearless risk-taking are also heavily in demand. Interestingly, the game allows you to file

and update your real stock market portfolios with a password secured database, so it's no surprise this one will be out on the PC as well as Amiga, ST, C64 and CPC in April.

Sci-fi fans are also catered for with two releases available in February. Nightdown, out on Amiga, ST and C64, finds you in the role of a Robotics Engineer controlling a remote explorer through alien worlds, whilst The Pansonic Complex, due on Amiga, ST, C64, CPC and Spectrum, has you tracking down renegades in a computer-controlled underworld.

For lighter relief, Magic Bytes have set for February release Tom and Jerry: a two-player game based on the cartoon series, in which you get to play the part of the



• Persian Gulf Inferno on the Amiga

mouse - and, due out later this month - Minkgolf, a four-player crazy golf sim featuring teleporter fields. Both will be available on Amiga, ST and C64 with Tom and Jerry also set for CPC and Spectrum.

SHOOT ALORS! ACTIVE'S COCKTEL OF GAMES



• 20,000 Leagues Under (any minute now, presumably) The Sea



• Terrific Land (house prices are mushrooming)

Active Distribution's recent signing of the marketing rights for a range of titles due out on Amiga, ST, PC and CPC from French software house Coktel Vision has led to them picking up the rights to Coktel's Walt Disney licence - Jungle Book. Hopefully out by Christmas, this arcade adventure will allow you to take the role of a number of the film's characters.

Other well known titles in the pipeline include Peter Pan and Emmanuelle (that's two separate titles there!). The seventies' so-called sexy sinner doesn't feature scene after scene of monitor-mirring mayhem, though -

EW



• Ringo: It's while he's still cat down...

there's only a couple of screens which could be described as...er...French. Most of the action takes place in the appropriately steamy climes of Brazil, where Emanuele has gone missing. You have to go in and get her — a mission believed to feature furious wrist-intensive joystick action.

First off the line though is *Freedom*, for Amiga, ST, PC and CPC, a strategic role-playing war game set in an



• Emanuele: get ready for some wrist-intensive joystick action

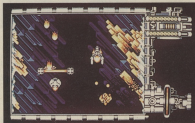
18th century saga-producing colony. And yep...you're a slave leader about to make an heroic escape. Close in its heels and on the same formats is *20,000 Leagues Under The Sea*; a sub-aquatic arcade adventure where

seats on the way to the top. Nice features include a human opponent made so that two players can fight each other and the option to build your own opponent's characteristics.

And on the Home Front...

OUTLAND Pandora

After discovering a rift in the space-time continuum, you find yourself in a MT-32R fighter thrown back in time just four hours before an attack on Earth. And its two-plane vertical parallax scrolling shoot-em-up time with a host of bolt-on weaponry as you laser your way through 16 levels of alien defences. Featuring extended music for owners of D5 drives and stratospheric two-player action, *Outland* will land your way on Amiga and ST any day now.



• Up against the Titan Battler on your ST



• Rambo rampages his way through the C&A in mid-November

RAMBO III Ocean

Sharing his long-lost boss has been abducted by Afghan crazies, Rambo goes bay-wine in his usual unassuming way. This one finds you with knives, arrows, various guns and an overhead view of the action as you battle your way through a heavily-guarded fort to an awaiting

XENON Melbourne House

The definitive 16-bit vertical scroller makes it onto the Spec and C64



• Looking for laser cannons in Speckey Xenon

some six months after its original coin-op conversion. Fly your craft through 4 stages of alien territory as you try and destroy as much as possible by switching between ground and airborne vehicles. A fine balance between frustration and addiction makes up for a gameplay that has possibly seen its day, but the graphics and sound on hand will only help enhance playability even further.

DRAGON NINJA Imagine

If it had kept its original title, *Sad Dasher versus Dragon Ninja*, Imagine's latest would have won the Raptax Award For Coolest Title.



• A great way to get your kicks on a Specy

This Side Of Heroage Of The Mutant Ninja. As it is, Imagine's martial arts kick-everything-to-death-em-up looks a tasty little number with its 3 levels of agro-spectacle as you take on numerous superhuman natures in a bid to save The Free of the U.S. of A. Complete the mission and hell give you a hamburger. Just think — it could have been a ketchup.

WAR IN MIDDLE EARTH Melbourne House

Based on Tolkien's classic, this multi-level action adventure is billed as including the whole of his panoramic vision as you follow in the footsteps of Frodo and Gandalf in their bid to get the Ring to the Cracks of Doom. The press release



• Off on the trail to Doom with an Amiga and a couple of friends

states that there are infinite possibilities...no two games will ever be the same, so it looks as though you're in for quite a quest if you buy this one. Virgin are tipping it as a major knee in sales for Valantic. But there's a fair amount of Forces to be found in the gameplay too.

CAPTAIN FIZZ AND THE BLASTER-TRONS

Psychopase

Snook Preview — so hot the screenshot melted (almost)

A two-player arcade style game where the strategic actions so intense you'll actually need a friend to help you get through it. Available on the ST and Amiga in December, *Captain Fizz* features a huge labyrinth inside the silicon circuits of a master computer you have to solve down. The screen is cut into two overhead views of the zone corresponding to each player's point of view as you have to split up and swap the various coloured cards allowing access through various gates. Coming out at £14.95, *Captain Fizz* also looks set to score in the price dept as well. Will show you a screen shot as soon as they have one available.

PIONEER PLAGUE

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Welcome to the New Computer Express games section, the liveliest, most up-to-the-minute reviews for miles. You'll notice that our reviews are laid out differently from run-of-the-mill computer mags. We

- use a simple, no-holds-barred, no-fuss star rating system, where only the very best games get the coveted five-star rating.
- break up reviews into easily-digested sections relating to scenario, gameplay, graphics etc. — no more hunting to find out what you want to know.
- take version differences seriously. You'll always know what machine the game's being reviewed on, but we'll give you information about other versions too.
- give games of particular merit their very own box, together with a flash to say what's so good about them.

BATTLE OF THE BIG SEGA COIN OPS

AFTERBURNER

MEDIAGEIC

Spectrum • £9.99cs

Also on Sega console

Out soon on C64, CPC, ST, Amiga, PC, MSX

Sega's Afterburner has held the title of the best arcade game for quite some time (with the only contender being Sega's Galaxy Force II) — thanks to its superlative audio-visuals and air-tick inducing hydraulic cabinet. What the arcade version didn't have was gameplay — but with those incredible features, who cares?



• Missing those MIGs at much 2

New Mediagene has bought the rights for the home computer conversions, and they're spending megabucks on promoting it (watch out for the TV adverts this month) — but have they spent any time and money on improving the gameplay?

● GAMEPLAY

Afterburner places you in control of an F-14 Thunder Cat fighter — assigned to wipe out all enemy forces over progressively more hostile territory. Armed only with 20mm cannon and guided missiles, it's a good job your fighter is such a manoeuvrable aircraft.

In play the action is an ongoing onslaught of obligatory obliteration — yeah, it's that boring! The same relentless gameplay is interspersed with momentary pauses for rearming/refuelling — then it's back to more of the same...

● GRAPHICS AND SOUND

Visuals are stunning — definition, animation and sound are almost faultless, considering the Spectrum's graphics limitations.

Audio is slightly less impressive, with only average sound track and sound effects.

● OTHER VERSIONS

Other versions will be available shortly, but as the gameplay problem lies in the arcade game, we can only hope for improvements in graphics and sound.

● EXPRESS VERDICT

Technically, Mediagene's conversion is brilliant, the problem lies in the complete lack of gameplay of the original.

This was less noticeable on the arcade version with its state-of-the-art hardware, but you just can't get these effects on the Spectrum — and you're left with little more than a fantastic demo.

★★★



• Give it a shot!

only real worry you have is whether you can keep your finger on the tracer machine gun button for long enough.

Each landscape is viewed in either a direct horizon fashion or from overhead — a diverse system which adds greatly to overall interest and playability.

● GRAPHICS AND SOUND

Visuals are just as impressive as Afterburner's — but with even more variety. The only noticeable flaw is the occasional glitch in speed — which fortunately doesn't happen very often and is made up for by the range of animation at hand.

Audio, comprising copter blade sounds ringing on white-noise and spottefect explosions, ranges from good to bad, although on the whole it's a more than adequate rendition of the arcade version's full attack.

● OTHER VERSIONS

The other versions also look promising, but they'll have to go a long way to beat the Spectrum version.

● EXPRESS VERDICT

It looks like US Gold have actually done a good job of converting Thunderblade — unlike Out Run, their chronic effort last Christmas. We'll reserve our final judgement until we've seen all the versions.

Nevertheless, the Spectrum version is superb, with only a lack of long-term interest to worry about, and there is definitely no choice when considering this or Afterburner — we'd go for Thunderblade every time!

★★★★★

Rik Haymes

THUNDERBLADE

US GOLD

Spectrum • £9.99cs, £12.99dk

Out soon on C64, CPC, ST, Amiga, Sega

The other major Sega arcade conversion for this Christmas, via US Gold, is Thunderblade — a helicopter simulator in the Afterburner mould — but hopefully offering better variety in gameplay.

● GAMEPLAY

It's time to get down to some serious destruction as you glide through cities, canyons and forests in a quest to take out anything that moves. Along the way, a seemingly tranquil trip out to sea is met by a massive, heavily-armed aircraft carrier and its gunships. Survive this and its onco deserts and forests in a bid to take out a flying battleship. The

CLASSY CONVERSION!

LIVE AND LET DIE

ELITE DOMARK

ST • £19.99dk

Out soon on CPC, Spec, C64

When Domark bought the rights to the James Bond movie it just so happened Elite had an off-shore Out Run all ready to go. The two teamed up, buttressed down the lifeboat covers and got down to some serious business.



• Outrun Out Run as you smack up the throttle and mind the mines

Kananga who's decided to boost exports by producing the ultimate consumable — the one that recreates its own demand — Heron.

From an international itinerary of locations — all involving vast tracts of water — you choose between target practice in the North Pole, exercises on the Nile and South American jungles and finally the New Orleans mission itself. Target practice requires driving your boat at near full throttle as you fire machine guns and missiles at boats.

Once you've learnt how to handle the boat, using either mouse or joystick, you move onto the exercises to clue up on the offensive defences Kananga will employ. Handy little friends like mines, gun emplacements, boat bombers, choppers, subs, various planes, boats and booty-trapped fish barrels. In fact, fish is the key to the game — neither lives nor time are a problem

COLOSSUS CHESS X

CDS

ST-£24.99cd

Amiga version planned

Martin Bryant's twelve-year history of chess programming has taken him from the early Colossus on C64 and Atari, White Knight on the Beeb and versions 3, 4 and 10 of this tour de



• Colossus 3 - the games it plays against itself seldom end in a draw.
force.

The X version's playing algorithm took over a year to develop and concentrated on overall speed and strength in the early stages of a game verified by extensive tests played between two accelerated Apple 2s linked by RS232. The major achievement of this extended research is the arrival of the first chess program which learns from its games.

• **GAMEPLAY**
Colossus has every feature you're likely to find in any other chess game and more. There are four ways you can make your first move - by using the mouse to drag a piece to its intended square or by clicking on start and end squares, by entering notations at the keyboard or by using cursor keys. The reply can take up to any time you designate and will scan through 11000 records of 2000 lines of play looking ahead anything up to 35 halfmoves at a rate of 500 positions a second.

You can also force the program to play for a draw or to lose, but for the most part you'll be playing at the default setting of club-level with Colossus out to take you out as quickly as possible. At any point in a game you can also change sides, ask the program to carry on playing itself, interrupt a machine-machine game, take back one or multiple moves, force the program to move or make its next-best move.

You can choose between full tournament play, average move time, equal move time, all moves to be played in a designated time or in infinite time. You can also set up problems to analyse positions and stipulate solutions for normal mates, self-mates and helpmates at any point. You can also load and save games.

become your partner, who can either help or hinder your mission of re-enermy. If both of you manage to take out My Willy, you'll have to fight a duel in order to ascertain the winner of your game's affection.

• **GRAPHICS AND SOUND**
Surprisingly, PC CD managers to produce a reasonably accurate display of the action. Sprites and backdrops are well drawn and animated, and their lack of colour is compensated for by clever use of shading.

Less surprising is the sound quality - which is dreadful - but that probably won't come as a shock to PC owners!

Including 29 games representing the best computer vs human struggles since 1961 and 10 mating problems, replay games and send letters to a printer. Whilst playing a game, Colossus can adjust or update its opening book as required. In this way it can begin to anticipate your own style of play and your strengths and weaknesses and modify its moves accordingly. Thus, quite simply, the program you will have bought today won't be the same one tomorrow! Am we talking about something approaching true AI or what?

• **GRAPHICS AND SOUND**
Colossus X offers a playable 3D board-view which can be altered by simply holding the right mouse button down and dragging a wire frame to the required position. In addition there are four types of pieces available - standard, futuristic, oriental and medieval.

When activated, pieces move smoothly across the board to the required position. You can flip between white or black or a sideways view of play. All menu control is mouse-driven and you can flip to a 2D representation of the board too. By hitting space you can access an information screen showing the last seven moves, the state of the clocks, the amount of moves ahead Colossus is 'thinking' and it's best line of play. From the sound menu you can select a range of classical fives to accompany play or get Colossus to speak its moves in 5 languages. The speech is okay but suffers from the ST's sound chip's deficiencies.

• **OTHER VERSIONS**
At this stage only an Amiga version is in the pipeline and this should be an improvement over the ST in terms of graphics and sound. No doubt the music and speech will be dignified.

• **EXPRESS VERDICT**
A formidable opponent which regularly beats the best competitor on the micro-market - Chessmaster 2000 - can only be described as an essential purchase for any ST-owning chess player. No feature has been overlooked and every one has been designed with great care. Whilst 3D views are more or less standard these days, a program which learns from its mistakes is a first. And what a debut! Brilliant.



• As it's so fondly clever it's a good job you can cheat!

• **OTHER VERSIONS**
All the other versions should be available shortly, with the ST and Amiga versions likely to be the best.

• **EXPRESS VERDICT**
Taking into consideration the limitations of the PC graphics and sound capabilities, DD is quite faithful to it's arcade parent. On the downside, collision detection is a bit dodgy, and gameplay is rather limited.

Overall, DD is a credible effort, and makes a welcome change to all those fight-fests available on the PC.

Rik Haynes

far you - it's simply a question of driving through floating fuel barrels to keep going. Miss one or two and it's curtains. Fuel does run out very quickly.

Ironically, it's best to drive as fast as possible to save fuel - but then normal laws don't apply to James do they? Finally, you must leap off a floating log and fire off a missile to destroy the brainprocessing installation. That's if you make it that far.

• **GRAPHICS AND SOUND**

Live and Let Die shifts very fast indeed. Far faster than most racing games, in fact. Scrolling is wickedly fluid, with vibrant, colourful sprites competing varied background landscapes. Sound is confined to a catchy in-theme and the usual spot-effects for explosions. Worthy of note, though, is the sound of your jetdrives as you throttle forward to a full-speed chase.

• **OTHER VERSIONS**

Also due out on CPC, Spectrum and C64, Live and Let Die will no doubt feature the same gameplay with tosed-down graphics. Of the 8-bits, the CPC version seems to most faithfully reproduce the great graphics of the ST version.

• **EXPRESS VERDICT**

If you're after a fast, action-packed game and fancy a change from land-based road wars, Live and Let Die is a good choice. Although it's one of those games that require many trips around the same courses to familiarise yourself with the position of various pitfalls, the game is well worth while. When you have it under control there's only thing further to do. Go around faster. You'll be shaken but not necessarily stirred.

Andy Storror

DOUBLE DRAGON

MELBOURNE HOUSE

PC-£19.99cd

Out soon on CPC, Spec, C64, ST, AMIGA

Double Dragon is probably the most famous kick-em-to-death-on-up out of the bunch an Christmas pre-releases. One of the most popular arcade games in '87, Mastertronic has just completed DD on the PC, a computer not exactly renowned for its arcade quality audio-visuals.



• Grappling in garriphand!

• **GAMEPLAY**

DD places you in the role of a heroic vigilante given the task of rescuing your luscious girlie from the evil clutches of Big Boss Billy (did you note).

As your way you way through a downtown backdrop you'll encounter all manner of scare ranging from leather-booted S+M 'sters (complete with whips) to mean and massive low-life creeps.

But you're presumably so hard you can not only take out these scumballs, but also use any weapons they leave behind such as knives, baseball bats and even the aforementioned whips.

The final confrontation is with Big Willy himself, who provides a mean challenge, especially as he's got a gun and he's not afraid to use it!

When using the two-player option, the other player will

OUT RUN

US GOLD

Amiga - £19.99dk
Already on Spec, C64, CPC, ST, Sega

Nearly a year since the outstanding arcade game was converted to 8-bit format, Out Run is now on the Amiga - but has it been worth the wait?

VERSION UPDATE

Out Run is a driving game, with you placed in control of an open-top Ferrari Testarossa complete with girlie at your side and an open road ahead.

Racing against the clock, you have to navigate some serious roadworks - tunnels, sharp bends and deserts are only the start of your problems as there's the usual selection of Sunday drivers around to give you a hard time.

If you're successful, you'll win the undying love of your girlie - if you're a wimp, you'll be back to driving that Robot Robin on the M25!

Audio-visuals are just about adequate - they're better than the 8-bit versions - but the Amiga is capable of much more.



Without the hype, what are we left with?

When 8-bit Out Run came out last year, everyone was swept up by US Gold's hype, lather for a mile, and left with a really atrocious piece of a conversion. If you're still interested in 8-bit versions they will soon be available on a compilation package called Gamers - which also includes 720, California Games, Gauntlet II and Rolling Thunder - all for about £15.

Whatever US Gold have been driving at since the 8-bit Out Run's arrival last Christmas, they certainly haven't been raffling Out Run on the Amiga. Somebody should have put their foot down!

In a word it's pathetic. The audio-visual quality is appalling when compared to other Amiga titles, and the limited gameplay roars its ugly head after only a few games.

Out Run on the Sega console is still the only half decent home conversion, which is a shame because the arcade game is simply brilliant - not just because of its high audio-visual quality and hydro-cabinet, but also for its mega gameplay.

There may not be many Amiga driving games available, but that's no reason to buy an inferior product. Stay clear.

☆☆

Rik Haynes

EXPLODING FIST + FIREBIRD

C64 - £9.99dk
Also on Spec

Exploding Fist + is another kick-em-up game - in fact it's not a million miles from System Three's golden-ekkie beat-em-up - International Karate +.

PROSPECTOR IN THE MAZES OF XOR

LOGOTRON

Amiga - £19.95dk
Already on ST, BBC, CPC, Spec, C64



Screen 2: Rocks & Zeppelins. How do you get at those means past these force fields and boulders!

Xor has been set for some time on the other major formats, but the Amiga version has certainly been worth waiting for, with twice the number of levels, a built-in maze construction kit - and multi-tasking.

This last feature is a breakthrough in itself - it means Xor can now be played as a 'pop-up' game, whenever you need five minutes' break from your spreadsheet or word processor.

GAMEPLAY

There are plenty of puzzle/maze games about, but none that have managed to match the inventiveness, variety and sheer wickedness of Xor.

Prospector features such novelties as sticks of dynamite for blowing your way through walls, zeppelins which shoot off to the left as soon as they're released, and boulders which adopt a comical expression of surprise when you give them a shove.

GAMEPLAY

EF+ is a one or two-player fighting game with either one or two computer-controlled opponents, depending on the number of human players.

Using different joystick combinations you can produce 17 different manoeuvres, such as punching, kicking, blocking, jumping and move left or right. In combat you have to knock out your opponents by whatever means possible, thus adding to your score and combat points the reward depending on the type of knockout achieved.

The bonus round appears after a few combat rounds, with you having to stop an onslaught of nimble ninjas. Then it's on to the next combat round, which is basically the same as before only more frantic, ferocious and fun.

GRAPHICS AND SOUND

As with EF+, the game is played against a single backdrop - a downtown scene complete with neon advertising signs.

You control two heroes who must find their way about the maze collecting in the first version blue hot-air balloons. Once they've all been picked up you can then exit that level and move onto the next. But finding your way about the maze at all is difficult until you have a map - put together by assembling four scrolls found in the maze, and shown at the top right of the screen.

There are thirty levels in all, and while the mazes loach roughly sixteen full screens in size start off comparatively easy, they soon get harder, and need both heroes to co-operate if they're to be solved. There are no time limits, which is just as well considering the variety and difficulty of the puzzles.

GRAPHICS AND SOUND

The graphics with this type of game are hardly going to stretch the Amiga's capabilities, but the characters are humorous, colourful and well-animated. Sound is good, with both soundtrack and effects optional.

OTHER VERSIONS

The Amiga version is the best-looking to date, and packs a whole new host of features. Most disappointing, graphically, must be the ST version.

EXPRESS VERDICT

One of these timeless classics, Xor, and now Prospector, will last you a long, long time with its progressively harder - and more exasperating - puzzles.

☆☆☆☆☆

Red Lawton



Screen 11: Razor Edge. You're blocked in - unless you can work out some way to deactivate that bomb trap centre!



Greenie indulges in a spot of militant break-dancing.

The sprites, soundtracks and sound effects perform their assigned tasks well, but there is nothing outstanding about them - apart from the cute 'girlie' sprite announcing the start of each round.

TOTAL ECLIPSE

EXCLUSIVE!

INCENTIVE

CPC • £19.95cs, £14.95ck
 Due out soon on Spec, C64
 16-bit versions due in March

After the success of Driller and Dark Side on the 8-bits and their recent conversion to the 16s, here comes Incentive's latest game featuring the unique Freespace system developed on the CPC.

For a machine that looks like being the first to suffer from lack of software support in the year ahead that's a great testament. Could this be the final game to push 8-bit power to its limits?

● GAMEPLAY

Your mission is to locate and destroy the shrine of the Sun God Ra, which is located at the apex of an ancient Egyptian pyramid. The shrine is beset by a curse – if anything should ever prevent the sun from shining on the shrine during daylight hours it will be destroyed. Unfortunately it's now 26th October 1930 and is just 2 hours... yes you guessed it... there's going to be an eclipse by the moon. When this happens... well let's just say the bids will last forever. And that's before the meteorites start raining down.



You start off outside the pyramid beside your biplane – it's then a simple manoeuvre into a nearby entrance and you're away. So, it's your job to make your way to the top with the revolver, wrist watch, water bottle and compass you've arrived with and save the world – again. This time though there's treasure to be had on the way to you might and up rich in the process. Indeed, the only way is up – the scoring system is based on the amount of treasure you touch to collect.

Along the upwardly mobile route you encounter riddles and mysteries, undiscovered chambers and locked chamber barriers. Besides needing to regularly top up on the water supplies you find in troughs, you'll also need to keep an eye out for Alpha – these cross-like symbols of life the Egyptians were so fond of. Find these and you gain access to barred areas and progress can be maintained.

From time to time you'll need to rest and give your poor old heart a rest. And watch your fuel! – some of those chamber floors are decidedly unstable. A map will be handy too, as you'll have to explore everything and everywhere. And of course, there are the fiendish traps left by generations past to deter would-be treasure-hunters. Get hit by a poisoned dart and it's the afterlife for you.

● GRAPHICS AND SOUND

The sense of other-worldliness presented by Freespace is certainly very convincing. You get the impression you could be wandering around for miles in



● That's the entrance, by your F-15



● But have you entered a pyramid or a labyrinth?

its solid constructions. The main screen is almost entirely devoted to a viewing window surrounded by various indicators of your current state of health, progress and orientation.

Movement is truly three dimensional – at any point you can move up, down, forward, back, left, and right so it's no wonder you can lose all sense of direction. However, you can just press F to return you to a Face forward position. It's also very useful to be able to change your height now and again to gain a better view of your environs.

There are some fifty locations requiring thorough exploration – that's twenty or so more than Driller and Dark Side – and there's the usual skillful use of shading to convince you there's a lot more than just four colours up and running. Sound is about as good as you're going to get on the CPC though – being confined to beeps and spot-effects that nevertheless manage to maintain the sense of atmosphere and involvement this tour de force of 8-bit programming evokes.

● OTHER VERSIONS

Total Eclipse will soon be out on the Spectrum and C64 any day now with 16-bit versions due in March.

● EXPRESS VERDICT

For its convincing atmosphere, technical accomplishment and graphic excellence, Total Eclipse is a winner on all counts. Incentive deserve great sales if only because they've managed yet again to prove that as far as solid bits are concerned the 16-bit machines have a long way to go to give their memory capacities and processor speeds. Although there's no way Freespace is fast enough to support frame animation, its screen updates are quick enough to deliver the essential ingredient in any game – sheer involvement.



Andy Storer



● Incentive's ingenious Freespace – it's like being there...

● OTHER VERSIONS

Spectrum EF+ more than holds its own against the C64 version.

● EXPRESS VERDICT

EF+ is very much a case of 'seenit, boughtit, playedit' – all before, especially if you've previously purchased R+. While on the subject of R+, that currently represents far better value for money – it's on the We Are The Champions compilation package from Ocean, along with four other major titles.

Still, if none of that bothers you, EF+ can provide an enjoyable bout or two.



Rik Haynes

CORRUPTION

RANBIRD

PCW • £24.95ck

Already out on ST, Amiga, PC, Spec
 Due out on CPC, Apple II, Mac

Amazing! An adventure where you don't have to trot around picking up treasure, battling golems and exploring damp, dank and cliché-infested dungeons.

Amazed not on other major formats for some time, Corruption now makes it onto the PCW. It's a game set in the big city, where all is not as it seems, where insider-dealing is the norm, and where only the quick-witted survive.

● VERSION UPDATE

The future looks rosy where you first start. You've just been made a business partner in the stockbroking firm of Rogers & Rogers, after all.

However, things are not quite what they seem, and if you don't rumble the plot pretty sharpish you'll find your

Incentive to succeed

Incentive is one of the games software industry's great survivors, having been around for, oh, at least five years. The seven-person team from Tadley is fronted by 29-year-old Ian Andrew who talked to us about the company's remarkable achievement with Freescape.

Total Eclipse is your third release based on the Freescape system. That's been a big project for a long time now, hasn't it?
We've been working on Freescape for over two years.

How did the original idea come about?

When we looked at what we wanted to do next, we decided to do something different, something that no-one else could do. We looked around and the only thing that no-one had done was solid 3-D on 8-bit computers. We knew it was going to take a lot of time because of all the research - in fact we completed it about 15 months later.

What's interesting about Freescape is that it started off as a technical challenge but the end result has been to create a feeling of entering a new world because you can go under things, around and over them - was that the intention?

That was the exact intention; to create a feeling of being there for the user. In fact the code name for it before it was called Freescape was Being There - you saw the screen image as though you were in the place you were supposed to be and that degree of realism was what we aimed for.

Now, tell me this, you had the first Freescape game Driller which got rave reviews last Autumn and many people felt that technically, and from a gamers point of view, it was the best thing around. But inevitably it got beaten on the Christmas charts by games like Our Run. How do you feel about the way that the industry is at the moment? Do you resent the marketing clout of your competitors?

sell trained for insider dealing (basking in the silences of a company about which you have inside information).

To get yourself out of this mess you'll have to find and examine various objects as well as interrogate other characters. Further clues are provided in the packaging, which includes an important audio cassette...

Given the PCW's limitations, the graphics are really quite good, and the game's parser is powerful enough for some quite complex commands, such as PUT THE CONTENTS OF THE ENVELOPE IN THE DESK'S TOP DRAWER. Long commands like this make sense, because the clock advances one minute every time you hit RETURN - and time is not on your side.

The Amiga and the ST versions naturally boast the best graphics, with the Spectrum next in the pile and the



• Ian Andrew

I don't resent it but they will always have the number one game if they've already got a licence which is extremely successful in arcades. What we've found is a niche which no-one else can do so we're quite happy to go along those lines. The opportunities in the future include on the business side doing interactive training which is a slight demoralisation and on the games side an actual arcade machine which is dedicated to Freescape - hardware as well as software. We believe that could be an incredible experience.

When might the world see one of those?
At least 2 years.

You're already talking to manufacturers about it?

Yes, we are but we haven't negotiated anything yet. We want to get Christmas over with because we're very busy at the moment.

You don't think that the pace of Freescape games is more suited to home computers?

On the 8-bit version, yes, the speed it poses is more suited to home computers. But the speed which is possible through dedicated hardware would be 100 times faster. So you can put in much more detail.

Who's the technical genius behind this? Is it one person's brainchild or a whole team of people?

It's basically me and my brother. I had the idea and then he joined the company. He was previously working for business software and doing things on radio. He joined the company specifically to tackle the problem of doing 3-D.

He's a programmer?

Yes, he programs four computers: Spectrum, Commodore, IBM, Amstrad.

Do you program yourself?

No, I do the design, advertising, marketing and running the Company and production which is a pain in the ass.

Incentive are now one of a select band of small surviving independent software houses. Are you proud to be one of these?
Yes, absolutely.

Do you think there will always be a place for the smaller independent company?

I think to survive and be independent you've got to have a speciality which you are very good at and ours is solid 3-D which a lot of the bigger companies can't do - so we're quite proud of that.

Tell me about the interactive training. Are you saying you can use Freescape for business use?

It's still at the experimental stage. We're talking about interactive training for larger companies whereby they've got a new installation or base and they want a computer generated image so that would be able to move around the base in three dimensions and respond to certain situations. That's all I can say about it at present.

I see, so it's using Freescape to give a company a computer model?

Yeah, of whatever they want it for. A lot of the business 3-D packages don't allow you to walk around in real time or they cost thousands of pounds.

PCW last. However, the plot is the main thing, and in that respect the versions are identical. PCW/ST owners can run Corruption, but they'll need to copy all the files from side 1 of the program disk onto one 9512K formatted disk, and all the files from side 2 of the program disk onto a second disk (so as not to confuse the operating system when you're asked to do disk-swaps).

As a change from the usual sword-and-sorcery strand of traditional adventures, Corruption is like a breath of fresh air. Add an enjoyable plot which will take you a while to solve, and you've a winner on your hands.



Rod Lawton



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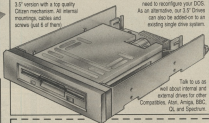
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HILES GORDON
TECHNOLOGY



Demystifying disks

How to store information - and find it again afterwards...

Computers are the very epitome of short-mindedness. Once you turn the power off, everything goes.

It can be somewhat irritating if you've just spent several hours typing in another chapter of your best-seller and your local electricity board has a bout of hiccup. Bam! - total memory wipe.

You wouldn't want to leave your computer permanently switched on even if you could, and since you can rarely complete a task at one sitting, it's obviously useful to have some way of storing information to retrieve at a later date.

Back in the days of monolithic computers, mainframes, magnetic tape was the most common storage medium. You know the kind of thing we're talking about - enormous metal cabinets with big tape reels on the front which spin backwards and forwards in seemingly random fashion.

When the microcomputer became popular it was obviously impractical to have one of those giant tape players next to your desk, so the ordinary audio cassette player/recorder was pressed into service.

Magnetic tape has a number of advantages for computer storage. It's cheap - you can use any ordinary cassette costing only a few pence, it's mechanically simple - you can get the human user to operate all the switches, and it offers high capacity - you can cram a lot of data on a tape.

But there are disadvantages too. Tapes are slow, and you can't easily find a particular piece of information if it's not right at the beginning or end. Neither is it very convenient to constantly have to operate fast-forward and rewind switches on the tape player as you work.

Disk magic

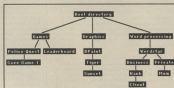
Disk drives overcome all of these problems. Once you've inserted a disk you don't have to worry about the technicalities of how it's used. The computer, or the software you're using, takes care of all that for you. Moreover, disk drives are fast: a disk can be spun much faster than a tape can be pulled through a cassette mechanism.

(The basis of a floppy disk are not that dissimilar to those of tapes. Both use a thin plastic material which is treated with a metal coating that can be magnetically abused. But whereas the tape is pulled past a magnetic read/write head, in the

disk drive the head is moved over the disk as the disk spins beneath it.)

Information is faster and easier to find with disks. Consider an audio tape, where you have to search through every bit of the tape to find any given musical track - whereas with a record you can position the needle directly.

However, disks were slow to be taken up for use with personal computers because of expense. A disk drive requires some precision engineering and that never comes cheap, but as the market for drives grew, mass-manufacturing brought



• A well-organized disk has a tree-like structure of directories, sub-directories, and files...

prices down a little and increased competition brought prices down a lot.

Falling prices

The price/performance of disk drives has improved nearly as dramatically as that of the computers themselves. A few years ago £500 would have bought you a 200K disk drive, today ST and Amiga owners can buy 800K drives for around £80, while £500 will now get you a hard disk offering as much as 20,000K of storage.

Disk drives, therefore, are now fast, flexible, and relatively cheap. For those reasons, the floppy disk has become the standard medium for computer storage.

There are three kinds of disk currently available: the older 5.25" disks used by many computers from PC-compatibles, to Commodore 64s, to BBC Micro; the new standard of 3.5" used by the latest PC-compatibles, Apple Macintosh, Atari ST and Commodore Amiga; and the definitely standardised 3.5" used almost exclusively by the lower-end Amstrad machines.

But while different computers may use the same kinds of disks, once a disk has been pre-

pared for use with, say, an Atari ST, a Commodore Amiga won't be able to read information from it, or write data to it.

The preparation of a disk is called 'formatting', and different computer manufacturers use different formats.

The disk format specifies a number of things about the disk: whether it uses both sides of the disk or only one; how many tracks (concentric magnetic bands) each side will hold; and how many sectors, or chunks, each track will hold. This format is imposed on the disk magnetically by a special program supplied with your machine.

When you buy a software package, the disks will already be formatted - if you format them again you will destroy the software you've just paid for. But new, blank disks have to be formatted before you can use them.

Your filing system

Once a floppy disk has been prepared you can forget about the format because it's there purely for the benefit of the computer. What you have to know is how the computer expects you to deal with your disks and the information you store on them - which means files and directories.

Think of a disk as an electronic filing cabinet containing a series of files. Some computer operating systems, like those on the Macintosh, the Atari ST, and OEM on the PC, carry this metaphor further with pictorial representations of your information as folders and files.

Files generally come in two types: program files - software that does something - and data files, information that programs can operate on.

Under older operating systems, these were differentiated by extensions to the file name. On a Commodore 64, for example, programs usually have the .PRG extension, while on PC-compatibles it is either .COM or .EXE.

Data files generally have a variety of extensions depending on the program that created them. Under the newer WIMP (Windows Means Menus Pointers) operating systems, the pictorial icons usually show you the difference between program and data files.

Unless you're planning to do any programming yourself, the only kinds of files you'll create are data files. Whatever application you use, you'll create relevant data files that will be saved on disk: letters in word processing, for example, or pictures in a graphics package.

Unless you're planning to do any programming yourself, the only kinds of files you'll create are data files. Whatever application you use, you'll create relevant data files that will be saved on disk: letters in word processing, for example, or pictures in a graphics package.

Directories

If you only planned to have one disk and a few files, your information could be stored willy-nilly and it wouldn't really matter. But as the number of files, and disks, grows, it becomes more important to organize them logically. This is done by means of directories.

For the computer the directory is very like a postal directory, allowing the computer to track down your files - by track and sector numbers rather than street numbers and names.

From your point of view, the directory lets you group your files into logical collections so that, for example, you can keep your business letters separate from your private correspondence. This is done by means of sub-directories, which act like folders. A well-organized disk has a tree-like structure of directories, sub-directories, and files, and for that reason the structure is often referred to as a directory tree.

Learning how to deal properly with disks will take you a long way toward mastering the gentle art of computing. •

Technobabble

LOAD • SAVE

The jargon relating to handling files can be very confusing, since it's used in a quite different way to common English usage.

For example, 'loading' software is used in the sense of loading a program into the computer. In real English, it is the computer that is loaded, not the program. But everyone talks about 'loading Wordstar' or

'loading Gauntlet', rather than the pedantically correct 'load the computer with Wordstar'. Similarly, 'save' means putting something away rather than rescuing it.

With the introduction of WIMP operating systems, load has been replaced by 'open', which makes sense since when you're dealing with a folder, but how do you 'open' a

document? Again, the jargon makes some sense but only in the appropriate context.

WIMP systems use screens, or partial screens, as windows on the document to be worked on. So you don't open a document, you open a window on that document. To put the document away, you simply close the window.

A weekly assault on computer jargon

VP Planner *plus*

version 2

"I can't really see why anyone would buy Lotus 1-2-3 instead of the cheaper, compatible, more powerful and versatile VP-Planner Plus"

Amstrad Professional Computing, September 1988

Nor can we. Can you?

Comparison of VP-Planner Plus version 2, 1-2-3[®] rel 2.01 and Quattro[®]

Features	VP-Planner +	1-2-3	Quattro
Worksheet size	800x256	8192x256	8076x256
Number of disks/ installation required	2/sample	4/sample	4/sample
3 line scroll/ pop-up menu control systems	YES	NO	NO
Undo/redo commands, Edit, macros	YES	NO	NO
Transcript macro files	YES	NO	limited
Background priority recalculation	YES	NO	NO
Fast recalculation	FASTEST	no	slow
Add-in toolkit for add-in programs	YES	no	NO
Text editor	YES	NO	NO
Report generator	YES	NO	NO
Line and box drawing	YES	NO	NO
Data input commands	YES	NO	NO
Multidimensional database files	YES	NO	NO
4BASE file retrieval by field & record	YES	NO	NO
Sideways print	YES	NO	NO
Background print	YES	NO	NO
Autosave	YES	NO	YES
Range-column-width commands	YES	NO	NO
0 width command (hide)	YES	NO	NO
Update windows on a worksheet	YES	NO	NO
Print graphs from worksheet	YES	NO	limited
Number of user directly executable macros	any	27	any
Macro leave mode	YES	limited (x)	YES
Edit recorded macros	YES	add-in	YES
Macro do-log (log) mode	YES	YES	YES
Math/ trig functions	25	35	35
Logical functions	9	7	8
Financial functions	11	11	31
Statistical functions	35	14	34
Date/time functions	32	11	32
String functions	17	17	21
Other functions	16	11	25
Total functions	127	98	188
EGA, CGA, Hercules supported	YES	YES	YES
VGA, ATI video support	YES	NO	vga only
Speed trials			
Addition large	0.62	4.00	*
Addition small	0.39	1.00	2.20
Division large	0.62	8.00	*
Division small	0.39	3.00	2.42
Expon large	0.62	20.00	*
Expon small	0.39	25.00	6.66
Multiply large	0.62	25.00	*
Multiply small	0.39	3.00	2.25

All times in hundredths of a second. Large and small versions of four macro driven worksheets were used. Large models contain more than 75 rows and 75 columns, small models contain 75 rows and 25 columns. Tests were conducted on an AT clone at 10MHz and an 80 processor. *Quattro could not load large models with 500k free after DOS. Lotus 1-2-3 returns the values zero for the second round only. VP-Planner Plus runs on IBM PCs and compatibles with 386 or more RAM.

"VP-Planner Plus is a magnificent program and arguably the best spreadsheet on the market today" - PC Plus, February 1988.

"More sense than money" - PC User March, 1988

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VP-Planner Plus/UK costs only £149.95, & VP-Planner/UK still costs only £99.95 (ex VAT)

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WANTED: a Word Processor that's got the lot...

Steve Cooke, the columnist who types more words in an hour than you'll read in a week, puts together his dream feature list for the perfect word-processor

Software houses are currently pouring millions into developing Desktop Publishing packages aimed at improving our presentation. What everyone seems to have forgotten, however, is this: there is still so much to be said about word processors, let alone a state-of-the-art one. Wordstar, Word, Wordperfect, you may THINK these products are hot stuff – but in my opinion they are, except for simple letter writing, useless.

The fact is that most word processors are grandchildren of the original text editors, conceived at a time when computers rattled teletypes and the only thing you really wanted to write was some obscure line of system commands. For the most part, all that got printed were numbers and program listings. Since then we've had a whole host of box-on-improvements added to the original limited concept, ranging from comprehensive printer control to spelling checkers – but all this means is that we now have more powerful text editors.

The need

The problem becomes clearer if you ask yourself what you actually want to use a word processor for. Creating documents involves far more than simply manipulating text. You want to polish your linguistic style, import and export passages, files, and data instantly and at will, not to mention all the usual tasks such as search and replace, paragraph deletion and so forth.

Unfortunately, word processors seem to make heavy weather of these obvious tasks, let alone anything to do with enhancing writing creativity. Writers don't need text editors – they need tools for linguistic creativity. Bearing that in mind, here's the recipe for a REAL word processor.

The answers

Our ideal word-processor toggles between three main operating modes: outline, process, and file management. You can access any of these modes at any time during writing, so toggling between outline and process, for example, switches data display from that of an outline to that of a document (see screenshot).

Having an outline means that you can first arrange your thoughts logically under different categories. If you're not satisfied with them, you can reedit them or edit them – and all with far greater ease than you can in a conventional word processor (this article, by the way, was written on an outline processor – PC Outline).

Once you switch from outline mode to process mode, the item numbering system of the outline would disappear, leaving you with a document for editing and expansion. You should be able to toggle back to outline mode if necessary, in which case each tab indentation denotes a successive

hierarchy of text. This would be useful for certain editing tasks such as moving paragraphs or printing out brief structure summaries.

Proper file management is essential within a word processor – but hardly any give you full control over your files and disk contents. You should be able to flick to a properly structured view of your disk, copy, delete, view, print, rename, sort,

and move your files without the slightest difficulty – and certainly without quitting your text. Lockscript on the PCW goes some way to providing a proper file management environment – a pity that it falls down in other departments (mainly speed).

You need to do more than just store files, however. You also need to be able to locate instantly

DOTTING THE I'S

Subject to the general principles described elsewhere, what else does our word processor offer?

1) SEARCH AND REPLACE

Instead of the usual absurd options of searching for words, words, and nothing but words, you should also be able to search and replace print codes, carriage returns, paragraphs beginning with the word "Nogga...", and all combinations of these features. How else can you do things like automatically swap all instances of *godfless* words to italics. No-one can claim that the wordprocessors we are currently offered give us adequate S & R...

2) STYLE SHEETS

Style sheets should be style sheets, not (as in most WP packages) rulers. In our program they would enable you, at the stab of a key, to customise EVERY aspect of the text that follows, from case through to print style, as well as the usual margins and tabs. Style sheets should also include OUTPUT controls, so that you could, for example, define NOT TO BE PRINTED or PRINT TO FILENAME. It's a style attribute within your text, enabling you to have conditional printing control within your document.

Finally, and very importantly, style sheets enable you to specify how many columns there are across the page. This means that at any point you can switch to two, three, or more columns of justified or unjustified text – and then revert to one column whenever you wish.

3) CURSOR MOVEMENTS

Cursor movement should be by key or by letter. The latter means that, supposing you want to jump to where it says "James" in the middle of the page, you hit CURSOR DOWN once, then type J, whereupon the cursor jumps down to the first word beginning with J...then A...the cursor jumps to the first word beginning with JA...and so on until you reach James.

4) SCREEN AND DOCUMENT LAYOUT

The screen is either blank, with a status line, or with complete menus. Wordstar is quite good in this department – other programs often aren't. You spend a lot of time staring at the screen and should be able to configure it as you like.

5) MULTIPLE DOCUMENTS

There is currently more support for this at the upper end of the market, but most word processors still only let you edit one file at a time. This is ridiculous. Being able to open more than one at once means you can copy text from one to another with the greatest of ease or work on two related documents simultaneously. Even PC Outline allows you to open multiple documents. Enough said.

6) FRILLS

Naturally you can index any word by hitting a control key with the cursor placed on it. You can similarly generate tables of contents and footnotes. Printing is buffered and can be carried out while working on your document. You can also create print queues of more than one document. Oh yes, and one last thing – there's an instant conversion key for turning upper case text into lower case and vice versa.

89

which files contain references to Horace, and which to Humphrey. Supposing you're a poet writing an ode to Jessica, in which you compare her to a summer's night. You're on your 89th version, and seem to remember that an earlier version said something about a summer's day. Stab at a key and there it is in a little window, ready for pasting in if you want. This 'locate passage' facility is even more useful for journalists and technical authors who often cover related subjects in detail.

Files are also stored with a brief 100-character note which, if entered, will display on demand alongside the file directory entry, reminding you what it's all about.

Entering text

Text is input to the document at all times in one of two ways, which you can toggle between at will. The first is simple entry from the keyboard, the second is by file transfer. Selecting file transfer takes you to the file management screen, but with the added option of receiving the file into the document via modem. Yes, our word processor has integrated communications facilities.

Text is output from the program via a menu to any device, including a remote communications link or - this is a real luxury - an industry standard document format. But wait, you cry, there isn't such a thing. Exactly - and why not? It seems absolutely absurd that when database and spreadsheet packages have defined ways of swapping structured information, word processors are still stuck with the ubiquitous ASCII file, which carefully strips out all the WP features - type style, tab positions etc - you've just spent ages putting in!

Customisation

Our word processor can be customised via easy-to-access menus and has easy to use macro facilities. This means having a simple 'learn' facility (invoked by a single chord-key press (e.g. Ctrl-L) after which every key stroke made is stored in a buffer. Hitting Ctrl-L again exits the mode and

prompts you to assign the command structure, phrase, or even entire document to one of the number keys in conjunction with Ctrl. Invaluable when you need to make a long series of similar changes to a document.

When it comes to printer controls, many word-processors are simply appalling. The modest Tasword could teach more expensive packages quite a bit on this topic. Again, hitting a chord-key sequence should immediately reveal an editable screen with at least twenty user-definable printer code sequences. These are all labelled by the user and appear when invoked on a drop-down menu for selection (they may also be inserted using CTL sequences if you have a good memory). How else can you properly exploit the powers of your super-spec printer? (condensed, extended, double-height, NLD, etc.)

Most WP packages are a nightmare to set up for convenient use, though there are some exceptions - PC Outline has easy-to-use macro facilities, for example, and Sprint is supposed to give you everything - if you're a programmer. But most word processors only give you the cream after pouring away the milk.

Getting help

While you're writing, you often need to insert information that you can't immediately calculate or locate. We therefore need three desktop accessories that will pop up over our text whenever required. The first is obviously a calculator - but it should be linked to your current cursor position so that hitting a key will sweep the sun straight from the calculator into your text.

The second is a calendar, though our word processor takes a leaf out of Lotus' Agenda package (if asked to do so, can interpret date references according to your system clock (if you have one). Then entering 'next Thursday in your file will result in Thursday, 12th December (or whatever) being stored in the text. This should be a live or static option (PC Outline has that) which means that a different date could be printed if the

document was edited and used again subsequently.

The third accessory is simply a scratch-pad or notepad. It automatically saves to disk and enables you to take immediate notes of something that occurs to you while you're working on another subject.

Searching for style

Finally, our word processor contains three stylistic aids: a thesaurus, a spelling checker, and a style checker.

Thesauri and spelling checkers are widely implemented these days. The former tend to be reasonably competent (though often very short on suggestions) but the latter are frequently diabolical. How often have you been told that there are 49 mis-spelt words in your document, only to discover that 46 of them are proper names. Simple, tell the checker to ignore capitalised words that do not follow a full stop and a space(s).

Furthermore, some spelling checkers can't even cope with inverted commas, initials (capitals again), and numbers. Our (non-existent one) can.

Although often derided, style checkers CAN help a prolific writer - everyone makes frequent use of certain word phrases that a style checker can pick up on and prompt you to change. They also make short work of that simple editing task - checking for repetitions of words in close proximity.

All these features can be instantly called up, and the style checker has an additional feature - it not only recognises your word structures but can, if asked, generate a little beep every time you say 'better good' (for example) and suggest an alternative (absolutely nothing).

What you end up with is a word processing system that presents a complete integrated environment for creating documents - not just for getting them into print. The first software house that fills this gap is going to sell more product in a week than IBM sells in a month. I'll be first in the queue... ●

Eight that almost make the grade

The perfect word-processor may not yet exist, but some come fairly close without breaking the bank. Here's our pick of the bunch.

● KIND WORDS

The Disc Company • £49.00
Amiga

HIGHLIGHTS
• best printed output of Amiga word-processors
• easy access to GDS
• good mail merge and spell checking
• graphics input

DRAWBACKS
• slow at printing

● LOCOSCRIPT 2

Locomotive Software • budget with
Amstrad PCW 9512

HIGHLIGHTS
• excellent printer control
• 24 pin driver/available
• copies with foreign languages & mathematical symbols
• good value
• comprehensive manual
• 2 fonts as standard, extra available

DRAWBACKS
• slow - especially at block handling
• no word counter

● MULTWRITER 2

£100 • Paperback Software
PC compatibles

HIGHLIGHTS
• twin file editing
• easy access to GDS
• multiple formatting rules
• good on-line help
• numerous other features including spell checker, macros, word counter, calculator, file encryption, etc.

DRAWBACKS
• early versions were buggy.

● PC OUTLINE

Brown Bag Software • £59.00
PC compatibles

HIGHLIGHTS
• pop-up wordprocessor/ideas organiser
• accessible from other programs
• many powerful features
• available as shareware to try out.

DRAWBACKS
• not intended as a fully-fledged word processor

● PROTEXT

Amstrad CPC, PCW, Atari ST, PCs

HIGHLIGHTS
• powerful and very fast
• works with two documents at once
• good spell-checker and mail merge
• file processing from within program
• flexible Teatext language for macros
• word counter and many other features

DRAWBACKS
• printer control slightly awkward on some versions
• confusing for first-time users.

● SCRIBBLE

HB Marketing • £40.95
Amiga

HIGHLIGHTS
• fast auto-reformatting
• simple and fast screen font/layout
• mail merge and spell checker

DRAWBACKS
• can't incorporate graphics
• can't handle extra Amiga fonts

● TASWORD

Tasman Software • £14-£30
Spectrum, Amstrad CPC, PCs.

HIGHLIGHTS
• good value
• very easy to customise especially on print controls.

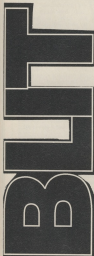
DRAWBACKS
• some versions have a strange approach to reformatting of text
• slow spell checker (bought separately)

● WORD WRITER

Electric Distribution • £79.95
Atari ST

HIGHLIGHTS
• integrated mail-merge and spell checker
• good thesaurus online
• includes 'outliner' for planning
• powerful, fast and well thought out.

DRAWBACKS
• can't incorporate graphics
• only one ruler per document



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Saving on disks

I'm just about to upgrade from a Commodore 64 to an Amiga and have a question about floppy disks. On my 64 I could save money by buying single-sided disks and using them as double-sided by cutting a notch in the left-hand side and then simply flipping them over to use the 'back' side. (This worked perfectly and I never had any trouble.)

What I'd like to know is, can I do the same with the 3.5" disks that the Amiga uses?

The short answer is: No, not in the way you describe. Here's the long answer...

Disk manufacturers only make double-sided disks, batches of which are checked as they come off the production line. If both sides check out OK, they get put into sleeves marked 'double-sided' and away they go.

However, if the tested disks fail on one side, the entire batch is marked 'single-sided'. Now obviously not every disk in the batch will be faulty, but at least some will have problems reading and writing to the dodgy side.

Just because the disk formats without problems doesn't mean it's going to work properly, and just because you've written your precious data to it doesn't mean you're going to be able to read it back again. The only way to find out is to wait



• Can you cut corners on 3.5" disks?

faster for between £250 and £400. There are a number of such accelerator boards available but the Orchid Turbo and Everex Accelerator are two of the better ones.

Data power

We're a small company using an Open PC-compatible machine almost exclusively to maintain a database of clients. The computer has served as well for the last year but now the database has grown to such an extent that things are slowing down.

For various reasons we'd prefer not to buy a completely new computer system at the moment. Is there anything we can do to get things moving again, at least temporarily?

Ultimately you'll have to upgrade to a more powerful machine - there's nothing like a big database to show up the shortcomings in personal computers and it's very much banks and large corporations routinely stick to mainframes for handling their data.

However, in the short term there are several things you could try - but don't expect miracles.

First is a general upgrade of your existing hardware. Depending on the software you're using, more memory might speed things up, first by reducing the need to go to the disk as often for information, and second by allowing you to use a large RAM cache which can also speed up disk access.

Also, consider a new, faster hard disk. Most PC-compatibles use slow hard drives - with around 65 milliseconds access times - to keep the overall price down. You could install a 30MB drive with 20ms access for under £300 and you may be able to carry on using your existing drive as well.

A more radical solution but still short of a new computer is to replace your existing processor with an AT-standard 80286 chip. This could make your existing machine as much as five or six times

for the disk to fail, and then it may be too late.

So by using single-sided disks in the way you describe you're taking a gamble. Chances are you'll be all right, but don't use those disks for anything you can't afford to lose.

As to the 3.5" disks used by the Amiga, these can only be used the right way up. If you look at the physical construction, you'll see that the disk itself is protected by a sliding metal cover and that only slides one way. If you turn the disk upside down the cover can't move.

However, the Amiga uses a double-sided drive - it can read and write both sides of the disk without needing the disk to be flipped over.

You can usually use single-sided disks in your Amiga but the same considerations apply as with the 64. The disks are only certified for use with one side and you run the risk of losing data if you use both.

However, there's a further point: if you buy a box of single-sided disks for your Amiga but the same considerations apply as with the 64. The disks are only certified for use with one side and you run the risk of losing data if you use both.

your 64 and the reverse side doesn't work, you've still got usable single-sided disks. If you get a box of single-sided 3.5" disks home and they won't format, the disks are completely unusable.

You pay your money and takes the risk.

a bit more expensive - between £120 and £150; single-sided comes in at anything up to £500; and 2400 baud can cost more than your computer.

CP/M info

I am an Amstrad PC168512 owner and I'd like to learn more about CP/M but information seems to be hard to come by these days. Is there a user group that could help?

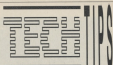
Try the CP/M Users Group at 72 Mill Road, Dartford, Kent DA2 7JZ.

Grammar checkers

I seem to recall reading somewhere recently about a program that checked the grammar, writing style etc of word processed documents.

This sounds like just the thing I'm looking for but I've lost the reference to the program. Any ideas?

There are now a number of such programs on the market but for the PC the latest and perhaps the best is Readability from Scandinavian PC Systems. It computes a readability index for docu



The place for your questions and suggestions

ments, shows you when your writing has become too wordy or over-complicated, and even compares your writing style to that of other authors, so if you want to write like Charles Dickens you can.

Readability costs £56.80 from: Scandinavian PC Systems, PO Box 215, Uxbridge, UB10 8TG.

Wait-watching

In adverts for PCs I keep seeing claims that certain machines have 'zero wait-states' while other computers have one or more wait-states. What does this mean, and how important is it when deciding which machine to buy?

The wait-states issue is one of the great red herrings for the potential PC buyer. It has to do with the relationship between the computer's central processor and its complement of RAM.

The Intel series of processors used in PCs - the 8088, 8086, 80286 and 80386 - are 32-bit processors. In other words, they can manipulate data four bytes at a time. But it's expensive to provide a 32-bit data bus - the route by which data is moved from the memory to the processor and vice versa - because, crudely, you need a lot more wires to carry the data, and a lot more electronics to handle the process.

The early machines - the 8088 and 8086 - used an 8-bit (one byte) data bus, while 80286 machines use a 16-bit data bus. That's one bottleneck.

While the evolution of the data bus continued, designers also exploited another way of boosting the PC: increasing the clock speed of the processor. This means that the processor can execute instructions more quickly. But while processors got faster and faster, memory chips lagged behind. That brings a second bottleneck - because fast processors handling 32 bits of data have to sit idle while the data is fetched from slow memory along an 8 or 16-bit wide bus. These are the wait-states: the periods during which the processor does nothing waiting for the data.

A PC with zero wait-states has an optimized design so that the processor doesn't have to suffer these idle periods.

Of course, this is technically important if you have to have maximum performance from your PC. But for most users it's an academic question - memory size, disk capacity, graphics, expandability and price are much more important. ●

Total comm-fusion

I'd like to buy a modem but on looking at a lot of advertising I'm more confused than ever. Some makes seem to be classified by baud rates and others by a system of numbers like V21 and AD.

What does it all mean?

The V-numbers are the computer industry's latest way of describing baud rates. All you have to know is what V-number describes what baud rate. Here they are:

V21	300 baud
V22	1200 baud
V22B	1200/75 baud

Most modems actually support multiple rates, and the most common combinations are V21/V22 and V21/V22/V22B. V21 is the standard used by Prentice/Modem, while most other databases and bulletin boards use V21 or V22.

Naturally, there has to be a joker in the pack and that is the one which works at 2400 baud. Calling this V24 would be far too obvious, so it's known as V22bis. I don't make this stuff up... I'm just telling you.

The AD designation stands for 'auto dial' and its counterpart is AA, or 'auto answer'. Unless you're planning to run your own bulletin board, auto answer is highly dispensable, but auto dial is well worth having.

Naturally, you pay for what you get: single-speed modems are quite cheap; dual-speed models

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Elite cheat

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Type the listing into ST Basic. There are two versions of Basic: one written in 1985 and the other in 1987. You can check which you have with About ST BASIC in the Desk drawer.

The copyright message will display the date. The later version doesn't support the 168500 command (in line 15, so make sure you remove the offending line).

Flair story

For months I've been promised a review copy of AMB's Flair Paint, first previewed at the May Alert show (when it was nearly ready). So where is it? Here are some of AMB's excuses: "We've amalgamated with Logitech", "It's not coming out", "ESN", "Name change...", "We're waiting for the manuals", "Bugs...", "It's in the post". Arrghh!

The latest chapter in this ludicrous saga is prominent Jeff Lawson's failure to arrive at Future's offices to demonstrate the program. Poor Jeff drove round the back streets of Bath for over an hour trying to locate us. Eventually he gave up. But did he bother to get out of his car and phone us so that someone could find him? Did he, half?

What makes it even more annoying is that Jeff has the only copy of the program. And it is protected in such a way that a manual is need to start the package. Naturally the manuals aren't ready so even if AMB send us a copy of Flair we can't review it.

With a blank disk in the drive type RUN. A file called CHEAT.CHE will save to disk. By loading CHEAT.CHE into Flair you can have all the goodies mentioned earlier. Go for it!

18 SEP 2008 6 REMOVE THIS LINE IF
20 YOU ARE USING THE NEW LIVE
25 000 000000000000000000000000
30 FOR T-10 TO 0000000000000000
35 READ AS POSE T-10-000000000000
40 0000000000000000000000000000
45 DATA CHEAT.CHE 255
50 DATA PPR,0768,0768,0768,0768,0768
60 DATA 000000000000000000000000
70 DATA 000000000000000000000000
80 DATA 000000000000000000000000
90 DATA 000000000000000000000000
100 DATA 000000000000000000000000
110 DATA 000000000000000000000000
120 DATA 000000000000000000000000
130 DATA 000000000000000000000000
140 DATA 000000000000000000000000
150 DATA 000000000000000000000000
160 DATA 000000000000000000000000
170 DATA 000000000000000000000000
180 DATA 000000000000000000000000
190 DATA 000000000000000000000000
200 DATA 000000000000000000000000
210 DATA 000000000000000000000000
220 DATA 000000000000000000000000
230 DATA 000000000000000000000000
240 DATA 000000000000000000000000
250 DATA 000000000000000000000000
260 DATA 000000000000000000000000

Game creators a con?

There's only one use for so-called game creators, and that's personal enjoyment. Have you ever tried making a game and then comparing it to a commercial product? It's a joke.

The whole point of game creators is to make you do as little programming as possible, preferably none, and give you numerous options for manipulating sprites and background data. Current game creators, STAC 4 and STOR (sounds like a toddler's cartoon), fail miserably. While they are fun packages and great value, you'd only be looking yourself if you thought you could recoup your money by producing a sizeable hit.

STAC ST Adventure Creator let you mix Knowledge screens with text. Unfortunately there's no displaying a STAC game. STOR is more flexible, but that's because it's a glorified version of Basic (non-compiled, at that). Unless you're a programmed forget it.

Two more game creators are on the way. Telepath and SEUCK (about six or seven years old). What do you think of them? Well, if you have such game names? Telepath will be available shortly from Microbe and promises to let you include computer pictures and digitised sound with text. Apparently Microbe is using the system to create several adventures which they hope to market. Of course they're creating games not the system, just like Palace used SEUCK to create Barbarians II. There's a great truth to Palace's story but very little. Programmer Jo Walker used a much-modified SEUCK to produce the game's background scenery. Not that she'll tell.

SEUCK incidentally will be available from Palace around March. I've seen the Amiga version (Palace released the ST product will be very similar) and was impressed. The creative phrase is in true WIMP style, you simply point and click at the options you want, SEUCK is very limited in what it can do (it can only produce Xenon clones) but what it does, it does extremely well. Non-programmers watch out for this one.

Unlikely software

Preempting software that won't be top of your heart's desire but:
200 X 80000 Source Code Translator + CP Software (0970 2402) + 030.95.
The package takes 260 source code - either staff perked across from a lesser master or something written in an ST editor - and converts it to 68000 code. From there you may use Devpac or the equivalent to produce executable object code. I've seen it in action. It's unbelievable (if you're into that sort of thing).
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Richard Mouton

PC UPDATE

File a fax

These days, half our ad sales department lives round the FAX machine while the other processes orders received from its bowels. So, that only companies with a Grand to spend can hope to add a FAX number to their letterhead.

Well, not quite. A new space of releases is trumpeting FAX cards for PCs. The idea is that your PC can spend its idle moments send-

ing to be in the root directory of your hard disk, assuming you boot from the hard disk.

The other essential file is AUTOCHECK.BAT. This is where you put background utilities, such as the PD utility DOSG037 which should be an essential part of any PC user's toolkit. AUTOCHECK is also where you can specify the directories into which DOS looks for files. Unless you tell it otherwise, DOS will only look in the current directory when it needs a file. You can, however, stipulate any sequence of directories across any of the drives installed on your PC. You do this with the PATH command. Here's one I prepared earlier:

PATH C:\MSDOS\UTILS\C:\AUTOCHK\LD\

Once this command is issued, either from the command line or from within an AUTOCHECK.BAT file, each directory in the list will be searched in turn for any file.

The nature of the directories in the example are not highlighted. The MSDOS directory should contain all DOS utilities. UTILS could take all non-Microsoft utilities and BATCHES could be filled with batch files for running applications. You don't need to have the D:\ path unless you have two partitions on your hard disk.

Using a path structure like this means you can keep your root directory clear of all files except CONFIG.SYS and AUTOCHK.BAT. Everything else can be kept out of the way in its own sub-directory.

Schneider remarks

Am I the only one who thinks the Sinclair Professional is an ugly beast? With Amstrad's look-alike screen it will undoubtedly sell by the million, but I really wonder why those coming from the CPC range, or indeed the Spectrum +, can't fail to notice that it has only four colours on its screen, rather than the 8 or 16 they now enjoy, and that its sound system can best be likened to a digital whine, so on any other PCs.

But only that, but if you want to add expansion cards (only two slots available) you have to leave the top open. This will keep it cool, perhaps rather too cool when you spill your lager into it or a late night programming binge.

So, I was in the market for a low cost PC to go for something rather more substantial, like an entry level Opus PC or the new Schneider Euro PC. There's a certain irony that Amstrad's erstwhile German partner has taken the design of the CPC, a keyboard with a small diameter drive on the end (3.5" rather than 5", this time), and turned it into a learner PC. Although it suffers from the same graphics and sound restrictions as the Professional, and can only take one half-length expansion card, I know which I would rather have gracing my desk.

Simon Williams



• The design of Schneider's Euro PC is strongly reminiscent of Amstrad's own CPC128.

GETTING TOUCHY

Now that we're all getting used to mice as the obvious way of getting about PC software, it's worth the occasional reminder that there are other ways of interacting with a computer. One of these is the touch screen.

A touch screen is an extension to the front of a monitor either as a touch sensitive glass sheet or a frame producing a crosshatch of infra-red beams. When contact is made with the sheet or a pair of beams are broken, the touch screen controller can interpret the position of the finger or stylus on the screen.

The obvious problem with this is that fingers are not high-precision pointing devices. One way round the problem is the technique adopted by Carneron Communications (0734 664611), which automatically averages the area of finger contact to one pixel as its 1024 x 1024 high resolution screen.

ing or recording facilities. Files can be prepared with a word processor or DTP package and pumped onto the FAX network for other, less techie machines to dump out at the other end. Similarly FAXes from elsewhere can be sucked in and held on disk until you want to print them out, on your very own dot matrix or laser printer.

Sound's good - the only disadvantages are the need to keep your PC switched on to take the calls and the need for an extra telephone line, though that is true for any FAX installation. The second drawback may be quickly removed, anyway, as there are already systems which monitor a phone line and pass speech calls on to a regular handset - a very desirable idea.

If you're interested in a FAX unit, try Progress Ray (01316 1777), who are selling £230 no frills, though without ST approval as yet, or Interpacknet (0753 35846) who would like the QMS for their approved JT FAX.

Down the DOS path

If you have a hard disk on your PC (a growing trend) you will probably find it gets cluttered very quickly. With a little thought and reorganisation, you can improve things not by using sub-directories and the MS-DOS PATH command. First by considering the files you have to keep in the root directory. There are only two.

When you start your PC, you will probably want to run device drivers and set up the numbers of files and buffers DOS allocates. Most drivers have a SYS filetype and all have to be called from within the CONFIG.SYS file by using a DEVICE statement. Typical examples are DEVICE=ADSL.SYS and DEVICE=VBE.SYS. The CONFIG.SYS file has

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AMIGA BLIT

and HiSoft Basic. These two Basics have been doing the rounds on that machine for over a year now and have managed built up considerable reputations during that time.

HiSoft Basic will eventually appear as it did on the Atari as two separate versions. The up-market version will retail at around £100 but the budget version, Power Basic will most likely cost half that figure.

The list of features offered by HiSoft Basic looks impressive. Complete compatibility with AmigaDOS and HiSoft Basic on the ST, strings upto 16 Megabytes in length (sounds useful) and interactive error correction (debug compilation) to name but a few.

Fans of Glentworth's GFA Basic are best advised not to hold their breath for the arrival of the Amiga version. Because here it

that the compression is not going too well. Two programmers were working on the conversion for a number of months but when asked to produce something (anything!) it turned out that the main programmer had not even started. He was then quite rightly given the boot. Upon hearing the news, the second programmer (I think of the bird) walked out in protest. Oh well, it's a funny old game!

Chiefs Galore!

Are you pitted down with the enemy closing in all around you in Atari's Operation Wolf done PC? Well it's a tip which should help you bring the word of justice, peace and the American way to all those Communists.

Some screens involve destroying helicopters and tanks, which is all very nice until your missile supply dries up. You're then faced with the task of destroying the enemy's headquarters with a more potent blast of a machine gun. This can have its advantages though! Once a helicopter or tank finally explodes, keep on firing into the explosion and your score will shoot up.

The secret for most obscure tip must surely go to following cheat for Pyrogram's super shoot-em-up Menace. At any point in the game, type in "DESTRUCTIONISTASTERY" and you will be rewarded with a full replay of alien-wasting equipment.



• Fantastic action in Menace

The fun doesn't stop there, however! By pressing various keys on the numeric keypad while in the cheat mode, you can activate between levels sublevels. Pressing any number between one and six will take you to any of the six screens while pressing ENTER will get you through to the end-of-level guard.

Not a lot of people know that!

Joan Hibson

Computer Discrimination

Why is it that the price of Amiga games software is predominantly an extra five pounds or even more when compared to the Atari version of the same software? This is a question that has been raised time and time again by frustrated Amiga owners.

The problem has not restricted itself to Amiga

A Shower of information

Amiga programmers looking for a good source of information on their machines will be pleased to hear about Abscon's latest additions to their growing library of technical books for the Amiga.

The three books are Amiga System Programmer's Guide, AmigaDOS Inside and Out and Amiga Disk Drives Inside and Out. After looking through the books over the past couple of days, first impressions are very good indeed. All three are completely up to date and include sections on the new KickStart/Workbench release, 1.3 (useful if we ever see 1.3).

Some may find the two programming manuals too much to take, as they are fairly heavy information-wise. If you're not interested in setting up GIMMEZEROZERO windows and AbsExecBase does nothing for you then you may want to wait a while before handing over your hard-earned cash. On the other hand, AmigaDOS Inside and Out is a book that should be of interest to every Amiga user.

In all, if you're in the market for some decent reference material but just can't afford to take out a second mortgage for the official Addison Wesley/Commodore manuals then these are certainly worth a look.

gas and STs, 44 and Spectrum owners have been at odds for a number of years because of the price differences in their game software. So why is it that a software house feels that it must discriminate between machines?

Richard Tidball of US Gold sees the problem in one that is controlled completely by market forces. According to Tidball, US Gold's pricing policy is viewed from a worldwide basis and, as a whole, sales of ST games are still higher than those of the Amiga therefore they can afford to keep the their prices down. Tidball continued, "A similar situation existed with the ST. Originally our ST games were sold at £24.95 but once sales had reached a certain level, we were able to keep prices."

Amiga sales have now reached a level where a similar price cut may eventually come starting with the Amiga version of LED Storm which will retail at £19.99.

Back to BASICS

Amiga owners have for a long time been crying out for an alternative to the Basic bundled with their machines. While AmigaBasic may be fine for most applications, it does not offer the kind of speed that a compiled Basic can achieve. Until now the alternatives have been rather expensive but all that could change with the recent announcement to two new Basics for the Amiga.

Anyone who has been exposed to (1) an Atari ST will instantly recognise both GFA

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Bits & pieces

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Coming up from under the Big Apple is the **Money Train Show**, the first of Bestway's releases. It should be reaching you as you read this, so keep your eyes peeled.

friend on 'partyline' for local call rates. So far all those Europeans who want to be Chatterbox, it could just be your lucky day. Computax has access to over 3000 programs on the 64 alone, which include pit games, demos and utilities.

Demos

It is believed that there is a new disk drive for the Commodore 64 already on sale in the U.S., ranging from \$180. The drive is called the '1587'. In common with the ST and Amiga, it uses 3.5" disks - which means we could be seeing games which up to 800K per disk. But is it faster? More news when we have it.

I & M theory

Did you know that is common with the Amiga and C64 can also have 250 x 400 'intensity'? This column will give the theory from month to month for these interesting routines.

The Amstrad on the C64 is very similar to that on the Amiga, except that the Amiga does interface using its upper list. On the C64 you would have to:

- 1) Take your 16-bit or multi colour bitmap and take the data from each row of every other line and then place the data in your own another bitmap in memory not leaving out every other line.

- 2) Repeat this but start one line down and store it into another bitmap (e.g. the original picture could be at \$2000 (\$100). You then place one part at \$4000 (\$1000) and the other at \$6000 (\$0000).
- 3) Once you've done this flip from one to the other each frame. This will make your eyes think that the two pictures are one. The Amstrad can be achieved by using certain colours or shading methods when drawing. In later issues we will include the machine code listing for all to use.

LISTINGS

This week's listing is a program that could improve the presentation of your Basic programs.

This program is a machine code listing which is typed in a Basic loader form.

Once the data has been read into memory a simple "SY549152" will run the program.

Line 170 is the data for the colours. The first eight numbers are the colours for the bars and the last number is the border colour.

* colour bars * machine code

0 FOR=070134:READA=POKE49152-LA:NEXTL:

SY549152

10 DATA 120,169,192,141,21,3,169,13

20 DATA 141,20,3,88,96,169,0,173

30 DATA 14,192,201,0,240,27,201,1

40 DATA 240,58,169,27,141,17,208,169

50 DATA 1,141,25,208,169,127,141,13

60 DATA 220,169,128,141,26,208,76,49

70 DATA 234,169,40,141,18,208,234,234

80 DATA 162,0,168,117,192,136,208,263

90 DATA 189,126,192,141,32,208,232,224

100 DATA 5,208,232,169,1,141,14,162

110 DATA 76,26,192,234,169,295,141,18

120 DATA 208,234,162,0,188,117,192,136

130 DATA 208,253,189,126,192,141,32,208

140 DATA 232,224,5,208,239,169,0,141

150 DATA 14,192,76,26,192,10,10,8

160 DATA 9,12,8,10,8,7

170 DATA 08,08,07,01,01,07,06,09,08

180 REM ##### COLOR DATA #####

Online fun

CompuLink's Prediction is doing well, and is a MUST for any wacky 64 owner interested in lightning and space history. Also involving around the net are some useful technical problem solving pages. These can be found at 'YOUNG'. There are lots of programs worth the effort of downloading from that technical genius and agency want EXOR GOLF. Exlor's genius can be found at 'EXOR'.

Moving away to Ireland, there is a very active user group there called CUGI. (Commodore User Group of Ireland), who are Dublin-based and doing rather well in CompuLink - there is even a Dublin node. In the near future, it will be possible to access CompuLink from TTY, so even the serious or wacky PC owner can log on.

There have been quite a few rumors that CompuLink may be going European. This would mean that you could talk to a Dutch

data of public domain software for the 64 and Amiga, including work from AGN + DATE.

BOGG and use (AMN + BEC).

After all these years of 64 demonstrations, the 64 is still going strong with demos proving it better than many 16-bit computers today. Demos to remember remain Boulder 2:win by MAT + PZ with music from 163008, and Play Games from the expanding 808 + DDDO who brought you 2D from Finland.

Will keep you posted each week about new demos. This week's favourite was Logo Show from AGN + DATE. It features many different logos from top software houses listed in and out, with the title music being a fairly version of the Amiga tune by the well-known MAN-AGS of W08E. The demo breaks no barriers on the C64, but does show nice presentation.

That's all for this week's pages, but we will have more chat on demos next week, with tips on how to get them.

Ken & Mic

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The sign of a good deal

CPC

Red hot tip (ouch)

A hardware tip - bang on, don't go off on a topic as yet! There'll be no diagrams, parts lists, photographs or jargonistic don't-burn-yourself-to-death-with-a-red-hot-soldering-iron type messages round here. A friend of mine (OK, my only friend) once decided to complain that his new printer keeps producing double line feeds. And this is what I told him, persuade your shiny new printer head and not the wire going from pin 14 of one and to pin 14 of the other. Don't leave taking a blade to your head. You could just solder pin 14 with a piece of self-shielding epoxy and method. If you ask me. The point is, that's the signal causing the extra line feed. Problem solved.

Next week I'll tell you how to make playing Outrun a painless experience. Finally, enough, that too involves a red-hot soldering iron.

Bored game of the year

What happens on Christmas Day whilst the Queen's speech comes on? Well, the TV goes off and you have to find something even Gnat. Aunt Mary (aged 30) can take part in. Hide and seek is out of the question, you'll probably lose her and only find her again when the Christmas tree gets packed away for another twelve months.

Eyes turn reluctantly towards nice Johnny and his Seelys045912-6664 (whatever that is) and all he can suggest is Amble L000V03, which is a little, er, sophisticated for everyone else - viz. he gets a score of twenty billion and his and the others are dead before they pack

you have the original already then forget it, but otherwise and you know all the answers you can have some great fun. It's pointless to play alone, though, unless you're very honest and admit it when you get answers wrong (I wouldn't dream of cheating, of course... well not much anyway.)

A very unfunny joke

Educational software on the CPC is a very scarce, so those closest to Rickie Educational Media who speculate in it, five colleagues on recent (1985) ST/SD. Prices, however, as always for this material, are a joke.

Don't tell anyone

Having trouble with Imagine's Videomax? The passwords to get into parts two and three are Oppenheimer and Ecology respectively.

Bulletin baud

(and other tired comments puns)

An old favourite is back - one of my *few* bulletin boards is online again. Crystal runs on a CPC (hear, hear) with one of those huge second drives and some clever software. If you're a CPC convert freak give it a whirl: V23 Viewdata, 7 data, even parity, 1 stop bit. Number is 01-346 2816, 8PM-5AM.

(One helped avoid it, the other dropped it on Hinxton. Very tasty.)

- Players of Firebird Savage can get three lives in the second and third parts of the game. For part two press 9 to go into password mode and then type in SABATITE. Press 3 on part 3 to enter the password TIGR25.
- And if you haven't yet visited the Mad God! Catacombs in Electronic Arts' Battle Ties you should say to the priest, "TKJAJJ", which is the name of the Mad God himself.
- Finally, did you know that if you type TMLYNG into the high score table of Isaac's Total Eclipse absolutely nothing happens? Curiously enough it happens with US Gold's Arcades of the Lancer too.

The great rip-off

Don't know about you, but I'm getting pretty damn pissed off with disk software costing £15 a throw. Disks are about £2 each now, so why the huge price difference between tape and disk? Now that disks come without the protective plastic case (remember them?), they're cheaper than ever. Of course disk software does have to compete with tape: it's a different medium. Look on the bright side though - think of all those ST and Amiga owners looking on: £15 plus for a game. And their disks are cheaper than £12V! Tough, isn't it?

Steve Carey

Why don't you let us have your views? Write - on this or any CPC-related topic - to Steve Carey, CPC Centre, New Computer Express, 4 Queen St. Bath BA1 1EJ. You'll get into print in Britain's fastest growing, most dynamic and funniest computer weekly, and maybe you'll win yourself a 'mystery free gift' too (i.e. can't think just now what to give you).

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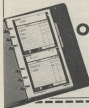


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• Domestica's New Beginning

up the pyrexia. (Only in the game of course, he is, nice Johnny's a good boy really, he is, he doesn't mean to stop off his dad's head with a breadstick. That misjudged the blow a fraction.)

A reader notes, names and disks, would be a great little game, such as wacky (oh dear) Domestica's New Beginning - A New Beginning. Oh no, not that lame old job of clever hints and intelligent design again? You guess.

Well, you and on. You there are loads of questions that cover the familiar six categories of entertainment, science and nature, history, art and literature, sport and leisure and geography. But the gameplan has changed a little. Instead of the expected board and dice you move from planet to planet in six different galaxies trying to find the futuristic equivalent of a piece of pie from the original TP. It's not much of a new beginning, and if

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YOUR FORMAT

MACHINE-SPECIFIC COLUMNS



Blocks to that

Tetra, the game that does for the PCW what Exotic did for the Amiga. Factor in the shapes tests, is one of the few low-cost adventure games that has come across from the other formats to the PCW.

Maybe some of its success lies in its Factorial theme, certainly the idea of building walls lends an Exotic bias favour to it. Or maybe it's a metaphor for pentecost?

The programming on the PCW version is a bit dodgy, though, and looks to have been knocked together by a BASIC hair-shirted student watching *Star Trek*. Some things you can live with - the fact that your state always incorporates the last few key presses of the gameplan, so that you are recorded for posterity in the high score table as "TTTTT", the are sensible reversing out of the screen when dumped back to CP/M, even the resource loops you get in when playing, more than twenty minutes in which the same sequence of shapes comes down wobbling you to work out a system of playing of movement and compiling new scores.

The only things you can't live with are its maddening advertisements - do this,

really have Tetris at Add House parties! - and that awful double beep that accompanies the drop of every block.

However, all the tools to remove it can be found on the system disk supplied.

After playing a game, you go to CP/M and use F11 to copy it. Else from the game disc to the memory, and then there comes a blank disc. Using LoadSave, that well-known hacker's tool, you can remove the file which has an apparently blank name (or a string of capital letters) to TETRIS.COM.

This copy disc works exactly as the original. Now using BD-COM (also on the 80000 system disc) you can change the bytes at 0CEB from 2B to 3A. This is done by running 3B and using a prompt instructing the Tetris copy disc and typing BA-CRUEUR. Next you type 80CEB-RETURN(RETURNS) then a full stop and BA-CRUEUR. The new version of the game is being free.

Rob Atkinson

Now the shooting starts

5512 owners who like shooting things other than mail have always got a raw deal out of software houses.

The only games for the PCW have been adventures, and sensible things like *Scrabble* and *Chess*. Now at Just Digital Integration have recognised that in every game there's a ruthless killer trying to get out.

Torahawk, the helicopter combat simulator which puts you behind the cockpit of an Apache, has just come out for the 5512. It costs £19.95; further details on 0276 584959.



Protected species

Copy protection has always been the subject of fierce controversy between software producers and users. Of late, though, the anti-protection lobby seems to have prevailed.

The QL market is inexorably moving over to disk expanded systems. The Thin abandoned microdrive complexity and software houses with protected cartridge programs have had to convert such programs to disk to retain the interest of those users. They have also taken the opportunity to drop the price protection systems on the programs at the same time.

Some companies have supplied unprotected software since the start. Tim Doherty of Tamer + said "We have concerned about it protected in the last year and removed the protection in the process. The effort of inserting additional protection for those supplied on disk was not sensible. Some customer organisations indicated concerns about the protection, but we don't see it as a major issue."

Archival quality

Active users with version 2.3 onward may be concerned of undocumented box graphics which go some way to improving the look of screen form designs.

After issuing the command 'edit' by typing F3 followed by any of the upper case letters A to K. The full range of box graphics is present, including corners, lines and inter-sects. These graphics are not only available from the built-in screen editor, but can be incorporated into your own archive programs by printing the appropriate code. Codes range from 125 to 235 and are used in the form 'print chr(235)' to obtain a top right corner or 'print chr(238)' for a left tee.

Although box graphics are missing from version 2.6, other undocumented useful print codes exist. Try 'print chr(230);' to obtain reverse video.

Paul Connolly

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PSsst!

A last look at the computer scene by cynical old hack. Private!

TEN FACTS

you didn't know about Alan Sugar

1. Six months odd after the launch of the Amstrad PC, Sugar was asked whether his teenage son had a computer. "Er, yes," quoth the great man, with a far less confidence than is the norm. And it's a 486, is it? A pause was followed naively by another pause, before the reply. "Er, no - it's a Spectrum." From this embarrassing episode came old Shog's burning desire to buy up Sinclair Research (are you sure about that?) - Ed.

2. Sugar's firm does not run its new but little Board Service on an Opus PC, despite the shockingly inaccurate indication

to the contrary in The Guardian. Opus is the software for the system, and has nothing to do with the Opus PC clones firm. The actual system runs on genuine Amstrad PC 1512s. Knackies are currently being tapped at The Guard... oh, and at Express as well. There was a passing reference to the Opus business somewhere in last week's issue. A Lawyer Writes: That's not an apology. Grovel immediately.)

3-10. Unfortunately, there now isn't quite room for all the other fascinating Sugar facts.

Not wholly Sensible

Picture the scene: there was Palace boss Pete Stone all ready to go over to Germany to view the DeutscheMagazinfolk with the Amiga version of The Shoot 'Em Up Construction Kit. But at the last moment, the trip was aborted. And why? Well stone me (as young Pete would say) but a whole disk of graphics was er, asped. And by whom? Slip forward John. Here, from the entirely wonderfully named programming team, Sensible Software.



• Name: very Sensible

An inspired choice

Ever heard of Digital Inspiration? You know the outfit - been around ages, best known for simulations, forever banging on about authenticity and suchlike.

Well, up to a point. That's Digital Inspiration. Digital Inspiration is actually a new back catalogue-publishing budget firm headed by the small, but perfectly formed computer hack David Lester. And guess what? The real DI is consulting with informed friends over possible legal action.

Oh what a surprise, knock me down with a feather, swipe me sideways etc etc. Just why didn't the droll Lester team then meet the eye hit on another name that sounded less like a rival software house? What about Necron, Doomark, US Golf, Granddab or Masterchew? Maybe Melbourne Hut? Send your entries to the David Lester Survival Fund, c/o PSST, c/o Express, etc.

Hype springs eternal 2

Another quite extraordinarily exciting opportunity for you to display your knowledge of the real meanings of computer terms.

This week: The Business Market. What do the following mean?

1. "We're keeping all our options open with regard to PS2/MCA etc etc"

a) We're waiting to see what everyone else does b) The design team's late again c) Like all the other firms, we can't really allow ourselves to believe that IBM have well and truly screwed it up.

2. "This really is a software revolution"

a) It's another word processing package b) It's another spreadsheet c) It's either a) or b) and is hopelessly over-priced.

3. "I'm sorry if you were at all misled when you bought our product"

a) Tough - we've buried the cheque, schizoid b) Asen's taken some simply wonderful.

4. "It'll be released in the second quarter of next year"

a) It won't b) It will, but we're talking about our financial year which begins in September c) God alone knows when it'll be ready - we just want to score on the column inches.

5. "I'm afraid our technical chief is in a meeting right now"

a) I know he's lying... b) You know he's lying... c) But this is a pointless charade that we all have to go through all the time

6. "Our next machine will be 686-

based"

a) Hi - I'm a marketing man and so I'm talking complete gobshite b) It's bluffing: computer jargon will always beget anything and will never want to reveal that they hadn't heard of any techno breakthrough.

7. "You'll be amazed by our terrific new printer"

a) It's unbelievably loud b) It's unbelievably slow c) It's both a) and b) when it actually deigns to work.

8. "The software is designed in compatible mode"

a) So the cheap-sounding price is a straight lie, because you have to have all three to do anything even part way plausible b) We haven't quite finished the rest of it yet.

9. "We've developed a remarkable new way to solve all the traditional problems associated with portables"

a) We've gone back to desktop b) We're providing five mile long power cables c) You get free use of a Marketing Support Assistant to help you carry the beans.

10. Have you tried our customer support department?

a) I didn't listen to what you said and I'm sure it would've been boring anyway b) I have not the slightest reason to believe that anyone at this firm either could help or would be interested in helping you with your dreadfully tedious enquiry c) Look how you big wheel: you bought the damn thing so fix your problem.

NEXT WEEK

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